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Educational News and Editorial Comment

THE DEPARTMENT OF ELEMENTARY SCHOOL PRINCIPALS

Jessie M. Fink and Ide G. Sargeant, president and secretary, respectively, of the Department of Elementary School Principals, address the following letter to principals of elementary schools:

The yearbooks of the Department of Elementary School Principals have been notable contributions to educational literature.

The fourth yearbook, entitled, *Some Professional and Administrative Aspects of the Elementary School Principalship*, is now ready for distribution. Arthur S. Gist, of the B. F. Day School, Seattle, Washington, is the editor. Section headings are as follows: "The Principal and His Professional Training," "The Rating of Principals in Service," "The Principal and the Improvement of Instruction," "The Principal and the Pupil," and "The Administrative Side of the Principal's Duties."

Every paid-up member of the Department of Elementary School Principals will receive a copy of the fourth yearbook. Make sure of getting this volume by sending your membership dues of $2.00 at once to Treasurer Courtland V. Davis, 1201 Sixteenth Street, N. W., Washington, D. C. This fee includes your subscription to the department bulletin, which is issued in October, January, and April. The bulletin alone is worth the price of membership.

Every principal a member of our professional organization is our goal.

PUBLICATIONS OF THE BUREAU OF EDUCATION

The following notice is issued by the Bureau of Education:

Seven hundred publications of the Bureau of Education are now available for distribution. A few of them may be obtained without cost by addressing the Commissioner of Education, Washington, D. C., but, in general, they must be purchased at nominal prices from the Superintendent of Documents, an officer of the Government Printing Office. A new "List of Available Publications" has just been issued, which shows the status of each document and the method by which it may be obtained.

These publications cover the entire field of educational effort. They vary in extent from a leaflet of a few pages to the comprehensive biennial surveys of education. The most numerous class are the "bulletins," which are, in general, monographs more or less complete, written by recognized authorities in the respective fields. As a whole, the publications of the Bureau of Education from 1867 to the present comprise a most valuable contribution to the literature of educational science and practice. The new list of available publications may be had for the asking.

DISTRIBUTION OF TIME IN THE ELEMENTARY GRADES

In City School Leaflet No. 19, published by the Bureau of Education, Fred C. Ayer, of Seattle, Washington, has compiled a very valuable body of material on *Time Allotments in the Elementary School Subjects*.

Perhaps the most impressive section of this leaflet is that which shows current tendencies by contrasting the allotments of the present with those of 1904 and 1914. Such a comparison shows that physical training has risen in the last decade from eleventh place to fourth. Spelling has had a varied history. In 1904 it occupied ninth place; in 1914 it had risen to fifth place; and in 1924 it went back to ninth place. Science has steadily receded. In 1904 it occupied eleventh place; in 1914, thirteenth place; and in 1924, fifteenth place. History has advanced from tenth place in 1904 to eighth place in 1914 and seventh place in 1924.

A study of this type, which shows long-term tendencies, is much more illuminating and furnishes a much safer guide for administrators who are making up school programs than do tables which show average practices in any given year. Average practices often result from mere conservative imitation on the part of school officers. A gradual movement extending over a decade, on the other hand,

is significant of a much more fundamental type of influence at work in the reconstruction of the curriculum.

Certain interpretations of the changes in particular subjects may be attempted with advantage. The decline in science shows that science has not yet succeeded in arranging its materials and organizing its methods in a way appropriate to the needs of elementary pupils.

The very great interest in physical training is a part of the general emphasis which is being given everywhere to health. It may be said in this connection that not all the school exercises introduced under the name "physical training" are intelligently planned to contribute to the improvement of health. If those who are most interested in this branch of school work hope to escape the mistakes and the fate of teachers of science, they should study the needs of pupils and prepare to serve more directly the purpose which has given their subject its present position in the school schedule.

PROBATIONARY PROMOTION IN OHIO

The following article appeared in a recent issue of the *Christian Science Monitor:*

A committee of school men appointed two years ago by the Ohio State Department of Education to study the problem of classification or grading of school children, has brought back a report that experiments have proved the advisability of adopting generally the plan of probationary promotion. The plan is the same used in the past in the one-room schools of Ohio.

After digesting the report, W. B. Bliss, assistant director of the Ohio State Department of Education, said in an interview that it showed that educational leaders are seeing the need of making the school organization more flexible.

"There has been built up a rather rigid system of school grades, running from one to eight in the elementary school and from nine to twelve in the high school," said Mr. Bliss. "The pupil's eligibility for mounting the next higher step is determined on the basis of the marks he has made in the subjects of the school curriculum. This curriculum is mapped out year by year. While it might be supposed that the seventh year's work is harder than the second, no one knows definitely that this is true. In fact, it has come to be suspected that these steps are not equal at all. The school system has sought to make thousands of children climb steps of learning beyond their natural reach."

Mr. Bliss pointed out that the school organization is built for the average child and that the majority of children progress to good advantage at the rates

set up by the curriculum and system of grades but added that it has become apparent that those who do not progress smoothly under the somewhat rigid plan number into the thousands, thus demanding a remedy.

Approximately 11 per cent of the pupils enrolled in the Ohio public schools are listed as failures at the end of the year. Failures in the elementary grades last year totaled more than 95,000. What would have happened if all of these pupils had been put into the next higher grade this past fall and given a trial there? The question cannot be answered for the entire group, but if the answer which can be given for a few communities that did this very thing is typical of the answers to be expected from the state as a whole, it is clear that from two-thirds to three-fourths could be saved from this loss of probably a year's time.

The data below represent trial promotions for the school year 1924–25 as prepared by Mr. Bliss.

	Number Advanced on Trial	Number Demoted	Number Retained in Higher Grade	Percentage Retained
Erie County	122	31	91	74.5
Gallipolis	96	30	66	68.7
Hamilton	281	79	202	71.9
Geneva	54	25	29	53.7
Preble County	74	14	60	81.0
Fairfield County	84	23	61	72.6
Jefferson County	161	56	105	65.2
Total	872	258	614	70.4

In 1922 R. C. Maston, superintendent of schools of Martins Ferry, Ohio, promoted 155 pupils on trial, with the result that 74 per cent of them were retained in the higher grades. A. G. Yawberg, county superintendent, carried on a probationary-promotion experiment in Cuyahoga County in 1923. Of 194 pupils in Grades II to VIII advanced on probation, 138, or 71 per cent, made good. In the classification committee's report seventeen school subdivisions are listed as having utilized this plan, although it is not apparent that all of the pupils failing at one promotion time were given trial promotions. Of 865 cases thus reported, 636 made good, which is 76 per cent.

"Evidence thus piled upon evidence ought soon to convince the skeptical that there is something to this plan—a plan which seems consistently to save from two-thirds to three-fourths of those extended its advantages," said Mr. Bliss. "The tendency all too prominent at present in determining promotions at the close of the term is to ask whether the pupil has satisfactorily done the work of the grade just completed. There seems too seldom to be any thought of asking whether the pupil could do the work of the next higher grade. The emphasis is to this extent improperly focused. A variety of factors enter into this process of deciding upon pupil promotions and failures. Term marks, examina-

tion grades, standard-test scores, general estimates, and so on, are some of the criteria applied. After all, though, the best test of a pupil's fitness to do the work of the next higher grade is to give him a chance to try it."

EXPANDING THE CURRICULUM IN THE UPPER GRADES

A special correspondent writing to the *Christian Science Monitor* from London reports on the evolution of English elementary education as follows:

It is one of the most beneficent, yet most unspectacular and unobtrusive, reforms initiated in Britain since the war that all children must remain at school until the age of fourteen. Until recently, although some local authorities had enforced the fourteen-year age limit, it was permissible in a large number of areas for children to leave at thirteen.

A representative of the *Christian Science Monitor* has made inquiries as to the effect of the raising of the leaving age in a country which is partly industrial and partly agricultural. The results of the change are now evident and are found to be threefold: personal, social, and educational. In the first place, the effect upon the children themselves is an unmixed blessing. Hitherto, they had passed at the age of thirteen into employment—usually among persons older than themselves. They consequently acquired the habits of maturity without possessing mature experience and judgment. Moreover, these habits of deed and word were not always beyond question. Today, boys and girls remain an extra year in the elevating and strengthening atmosphere of education, growing in body, intellect, and morals, before being thrust into the atmosphere and conditions of industry. They remain youthful for another precious year before being encouraged to become prematurely old. Further, they receive another year of attention to personal appearance and self-respect before becoming subject to the temptation typified by the wearing of mufflers round their necks and the general slipshod attire of the early years at work.

The necessity which has arisen for parents to maintain their children for another year, and that year at an age when the needs of the young person in the way of food and strong clothing and boots are approaching their maximum, has had the effect, in agricultural areas at any rate, of drawing attention to the urgent need which exists either for maintenance allowances for school children or for higher wages for the parents. The education authorities of the rural counties are pointing out that many country children are not getting enough to eat and are not adequately clothed. Parents all over the country are feeling the double burden involved by the extra year of maintenance, coupled with the loss of a year of the children's wages. The reduced family income, especially in the case of large families, is hitting working-class families very hard. Before long, measures will have to be taken by the state to remedy this.

The most surprising result, however, is the need that the change has disclosed for a reform in the curriculum in the upper classes of the primary schools.

This need had been dimly felt since the age was raised to thirteen, but it has come to a head with the addition of this further year. In consequence, special reorganization schemes are in progress all over the country, having as their object the adapting of the curriculum and classification of the children more closely to their after-life interests and requirements. The upper classes are being duplicated, one line of advance being in an academic direction, and the other, for differently constituted children, in a practical direction. Industrial, commercial, artistic, and other biases are finding their way into the schools. Care is taken, of course, not to sacrifice the purely educational needs to the requirements of industry. The change means, in fact, the introduction of reality and interest. Only in this way has it been found possible to secure the co-operation of child and parent in the additional year of school life or to justify the expenditure of public money in this direction. General opinion is strongly behind the extension of the age limit, and the general success of the change is everywhere acknowledged.

The last paragraph of this article shows how strikingly English experience parallels the situation in the United States. While many of our states have long had a compulsory school age of fourteen, it was not until after the vigorous study of elimination during the first decade of this century that the upper grades of our elementary schools really began to be important elements of the educational systems of the country. As soon as these grades registered large numbers of pupils, there arose, exactly as appears to be the case in England, the demand that the curriculum be enriched. The junior high school is the product of this demand. The upper grades in any well-organized school system which enforces compulsory attendance cannot continue to administer rudimentary courses of instruction.

ALPHABET METHOD OF TEACHING THE BEGINNINGS OF READING

Various schools are conducting experiments in teaching children in the primary grades the first steps in reading. In general, there has been wide adoption of the method of beginning with large units, such as words or even phrases. It is commonly assumed that the days of the ABC method are past. It is somewhat surprising, therefore, to find a modified alphabet method among the methods which are being tested for the teaching of beginning reading. The Henry Barnard School, the practice school of the Rhode Island College of Education, reports its use of such a method and gives the following account of its procedure:

First step: Use of emery letter and word forms.—The earliest step to initiate reading proceeds also to writing, for the beginnings of these subjects, as provided by this method, are identical.

The material used to stimulate the proper activity consists of script letter forms cut from emery cloth and mounted upon cardboard.

The pupil looks at the letter intently, sounds it clearly, and traces it precisely —the three activities proceeding in association. Several reinforced images are thus supplied, visual, auditory, and kinaesthetic-tactile. The visual and auditory images serve directly for reading; the visual and kinaesthetic-tactile images lead straightforwardly to writing.

It is essential to the virtue of the method that the pupil should proceed spontaneously with this step. His response comes as a free reaction in the proper situation of liberty as to the use of the material. The phenomenon of self-drill, through persevering repetition, results. The pupil practices himself competently in his mechanical beginnings when given continued opportunity to use the letter forms freely. In time, he operates with all the letters of the alphabet, using, as he has been taught, the short sounds of the vowels and the usual sounds of the consonants. This preparation furnishes an entirely adequate phonetic basis for an early reading impulse. Later—in the third grade, to be exact—the pupil must do more specific work with sounds in preparation for systematic word study; but then he will be so dominated by the real reading attitude that the required analysis will not arrest his progress.

Critics may deprecate a one-letter beginning because of the fear that it will impede later reading efficiency. The one-letter stage described is a simple and brief entrance into a procedure which, advancing quickly, begins almost immediately to deal with larger units. The progressive sounding, seeing, and tracing of word forms carries to the construction of words and sentences with a large movable alphabet, even before the pupil has accomplished all the individual sounds. The pupil's attention is not focused upon a single letter to the exclusion of words, phrases, and sentences.

Second step: Use of movable alphabet.—The next step toward reading proceeds to the use of a movable table alphabet. The top of an ordinary six-foot kindergarten table is covered with dark green felt; upon this are laid in order the letters of the alphabet. Over these is placed a protection of glass. A permanent arrangement of the alphabet which is suitable for young and active children is thus provided. Over the glass, exactly above the corresponding originals, are superimposed several reproductions of all the letters. A movable alphabet is thus supplied. The children make free use of this alphabet for the construction of words and sentences. The activities attached make strong appeal to little children. While at their work with it, they enjoy physical freedom even as they serve their intellectual advancement.

When the beginner discovers his newly acquired ability to compose words and sentences, he becomes persistent in the exercise. As he speaks the words he desires to make, the teacher helps him by the clear phonetic enunciation of them.

Here is faced the overemphasized difficulty of this kind of exercise on account of a non-phonetic mother-tongue. The profitable time to teach a word comes with the need to use it. The pupil undoubtedly does select words containing sounds other than those learned in association with the emery cloth letters. The unfamiliar sounds are taught as incidents. Phonic drill through monotonous repetition is no longer a bugbear to the first-grade teacher nor a bore to the first-grade pupil. Numerous examples of children's natural persistence in the successful mastery of difficult problems connected with the mechanics of reading present themselves in the ordinary course of school events.

At this point, the preliminary steps toward reading and writing separate, beginning to individualize themselves. The child constructing sentences of his own composition is not the child reading. The child building sentences with the alphabet is occupied with the analysis, composition, and expression of his own thoughts, whereas the child reading is occupied with the interpretation of the thoughts of another. The next step in the reading procedure advances the child to interpretation.

Third step: Interpretation.—The blackboard becomes now the plastic instrument of promotion. No other schoolroom tool lends itself so well to constant correspondence with the pupil's progress which, from this point, seems to grow by leaps and bounds. Action reading, after the silent comprehension of written directions, narrow in scope at first, speedily develops into motor responses of surprisingly broad extent. The activities and efforts are defined from the first so as to make the reading approach an accommodating and successful advance. For example, the teacher orally directs the pupil to "touch" certain objects in the schoolroom. She indicates by writing the names of objects to be touched (a red box, a tall vase, a string of white beads—single words are avoided). In similar manner, directions such as "Run to," "Walk around," "Stand under" are given, and, by immediate association of the oral direction with its written symbols, many action words are permanently learned. An alert teacher, keen to the resourceful possibilities in the immediate environment, encounters neither difficulty nor limit in finding an abundance of meaningful reading matter for effective reading exercises. Gradually, the compass of these activities is extended beyond the school. In an incredibly short time children become able to interpret anything which represents their normal experience.

THE RELATION OF WEIGHT AND HEIGHT TO NUTRITION

Within the last two years the United States Public Health Service has published several reports of careful studies of school children which have been made with a view to determining the relation between height, weight, and the general physical condition of the children. The purpose of these studies has been to test the validity of the various tables which have been proposed for the guidance of teachers and parents in detecting poor nutrition by means of stand-

ard weights. The method of study adopted by the United States Public Health Service has been to rate the pupils on the basis of individual medical examinations and then to see how accurately their conditions tally with the standards given in the tables.

A summary of the findings of one of these studies is as follows:

1. For the purpose of comparing different indices of nutrition, a group of 506 children who had the following qualifications were selected from much larger numbers: (*a*) native white of native parentage and native grandparents, (*b*) no physical defects, and (*c*) nutrition "good" or "excellent" as judged from clinical evidence.

These children were selected after careful physical examination as being in good health so far as the medical examiner (United States Public Health Service) could determine.

2. Three standards of weight were applied to them. It was found that according to the Wood standard (height-weight-age tables), 20 per cent of these children were more than 10 per cent underweight; according to Dreyer's standard (stem-length and chest-circumference tables), 13 per cent of the children were more than 10 per cent underweight; and according to Pirquet's "pelidisi" method, 17 per cent had pelidisi of 94 or less and were underweight according to this standard.

3. A cross tabulation was made to ascertain whether children underweight according to one standard were underweight according to the other standards. Although the percentage of children who were underweight did not vary greatly when different standards were applied (13, 17, and 20 per cent), many individuals classed as underweight by one standard were classed as normal or, in a few cases, overweight by one or both of the other standards. Of 506 children, 210 were classed as underweight by one or more of the three standards used; of these 210 cases, all three standards agreed on 15 cases as being underweight.

These children were selected as the best specimens of health that could be found among school children. In spite of this fact, one-fifth of them were underweight according to the standard most frequently used in school health work in the United States.

The effect of such a critical conclusion should not be the abandonment by schools of all efforts to bring pupils to desirable weights. It is probably better to use the tables proposed, even though they are not entirely valid, than to neglect the whole matter of nutrition. The effect should be to make teachers cautious in the application of so-called "standard" tables to individual cases. The best course for teachers to adopt is to use the tables with full consciousness of the fact that they are fair approximations rather than universally valid standards to be used in a formal indiscriminate fashion.

The physiological organism is complex, and the effort to determine its condition by a single characteristic is to attempt an easy solution of a most difficult problem. The lesson which issues from the studies made by the United States Public Health Service is one of more, rather than less, attention to health and nutrition. Teachers should be on the lookout for methods of promoting wholesome practices and should lead each pupil to adopt modes of life which are best suited to his particular type of organism.

SCHOOL PATRONS' MEETINGS

The State Department of Education of Maryland has issued a pamphlet entitled, *Worth-While Patrons' Meetings*, which gives an account of the purposes of parent-teacher associations, their development in the state of Maryland, and the activities which these associations may properly undertake.

The bulletin devotes eighty-three pages to the detailed discussion of topics which can be treated in programs of parent-teacher associations. Reading references and suggestions for speakers and plans of organizing the meeting are given in each case.

Topic XVI may be quoted as follows:

SCHOOL BUILDING AND SCHOOL EQUIPMENT

Should not parents be as actively interested in the school building and school grounds, in which children spend so many hours a day, as in the homes, yards, and other places where these same children spend the rest of their time?

What equipment should every school have in order to provide for the physical welfare of the children?

What aids should be provided for the intellectual and moral education of children?

Outline of the Topic

1. *School building and grounds.*—A study of the Maryland standards for school buildings and grounds should precede a study of physical conditions in the local school plant. Apply the accepted legal standards to see wherein the local building and grounds fall short and to determine what improvements should be made.

In connection with the school building, the association needs to consider its location and surroundings and its water supply and drinking arrangements; to study approved methods of heating, lighting, ventilating, and seating; and to inform themselves concerning sanitary toilets, sanitary towels, and the housekeeping equipment in the school.

There should be plenty of smooth, open space for a playground. There should be playground equipment and equipment for earning athletic badges—dodge ball, volley ball and net, chinning bar, jumping pit, balance beam, etc. (See Maryland Athletic Bulletins, State Department of Education.)

2. *School equipment for teaching.*—Besides the basal texts, the school needs: (1) As many supplementary readers for each grade as can be secured. (2) Three sets of geographical readers dealing with food, clothing, shelter, and descriptions of the continents. (3) One set of six supplementary readers in history. (4) Two current magazines containing juvenile material of literary excellence—such magazines as *Youth's Companion*, *St. Nicholas*, *Junior Home Magazine*. (5) One magazine containing pictorial material to use in the teaching of geography. The *National Geographic Magazine* is excellent, or the *Geographic News Bulletin*, published weekly by the National Geographic Society, may be secured for 25 cents per year. (6) Other library books as recommended by the State Board of Education.

The school also needs: blackboard, at least twenty feet per room; globe and wall maps; seat-work material for small children; pictures; bulletin board; book cases; library table with chairs; musical instruments; wastebaskets; foot rules and yardsticks; half-pint, pint, quart, gallon, peck, and half-bushel measures; United States flag.

Suggestions for Meetings

Arrange for a meeting when the teacher or someone thoroughly familiar with the need for, and uses of, certain equipment may present this need to the association.

Perhaps there is an effort to make the school a standard school. In that case, divide the outline into two or more parts, to be presented at successive meetings. At the last meeting check the equipment already at hand and make plans as to which items can next be secured.

Some one topic might easily be expanded into material for an entire meeting, as, for example, "The Need of Seat-Work Material as an Aid to Effective Teaching in the Lower Grades" or "The Educational Value of Good Pictures."

Parent-teacher associations can be most effective in co-operating with school officials in securing this equipment and may even purchase it outright until the school is in a financial condition to take on the expense, in order to assure to the children now in the school the advantage of the best possible teaching.

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POSTURE IN THE SCHOOLS

The maintenance of proper posture in the school is an important contribution to the health of pupils. At the Junior Teachers' College of Cleveland steps are being taken to prepare teachers to give attention to posture by the method described in the following announcement:

Every teacher in the school is to grade girls in posture, beginning today.

If a girl fails in this, the instructor will hand a "D" in personal fitness to the department of physical education.

Information will not be given as to where the marks are coming from.

In the Sigsbee School, Grand Rapids, Michigan, the principal, Mrs. Josephine A. Goss, has given special attention to the problems of posture. In a report to the superintendent, Mrs. Goss writes as follows:

Because we think that in many cases uncomfortable and ill-fitting seats are to blame for poor posture, each pupil was given five minutes to write anything he pleased concerning his sitting posture and seat. He does not always know the correct cause of irritation, but that he is irritated there is no question. Nothing prevents the child from making an attempt—many times unconsciously—to see at a correct angle. He will twist his spine, double up on his lungs and intestines—anything to avoid eyestrain. When his eyes are accommodated, his internal organs are compressed enough to cause poor circulation to the extent of making him logy or fidgety, according to his make-up.

The difference between the children's standing and sitting postures and their childish evidence against the uncomfortable seats and desks will not, I hope, be without appeal.

The statements made by the pupils with regard to their postures are of general interest. The following, which will serve as examples, were made by eight boys in Grade VIII–1.

1. I am not very well satisfied with my desk.

2. I am comfortable when I am writing. I can see the writing fairly well, but to see the letters I have to bend forward a little.

3. I have bad position because the lower back board is too far out. I lean forward to see what I write; otherwise it is blurred. The desk is too flat.

4. I think my seat is a little low, for it doesn't seem comfortable to put my feet straight on the floor. I keep putting them out on a slant.

5. I think I have not perfect position because my desk is a little bit too far away from my body.

6. I can see well when my book is held in the air because the printing is straight. If I lay the book down, I bend my head forward, and it makes my position poor. If I keep my position, my eyes roll down, and it is uncomfortable.

7. I know I have good position. My feet sit flat on the floor; my back hits the back of the chair.

8. My position is all right except for the board on the seat. It hurts my back a little. I can't keep my feet right because the seat is too close to the desk.

GEOGRAPHY

The April issue of the *Baltimore Bulletin of Education*, published by the Bureau of Research of the Baltimore public schools, is devoted to geography. Fifty-two pages are given to a series of articles by specialists in the subject and by school principals and teachers, setting forth the objectives and methods of school work in this field.

The discussions emphasize the new spirit which is manifesting itself in geography. Everywhere there is attention to the place of man in the world and a desire to do more than describe lands and seas and locate places. Pupils are to understand the world and to be led to an appreciation of the relations between physical environment and organized human life.

THE PLATOON SCHOOL

G. W. DIEMER
Director of Platoon Schools, Kansas City, Missouri

I. WHAT THE ORGANIZATION IS

The platoon school is an effort, through a rather complicated type of organization, to take care of the greatly expanded and overcrowded elementary-school curriculum and at the same time provide broad social training. It has grown out of various attempts that have been made to reorganize the school. Most noted of these is the "work-study-play plan" as developed by William A. Wirt at Gary, Indiana. The fundamental principle of the plan from an administrative point of view is the duplicate idea, which has been experimented with in various forms in some eighty-one cities of the United States. Scientific principles have been applied as to organization, building, equipment, and curriculum until today the plan is beyond the experimental stage. In such cities as Detroit, Akron, Pittsburgh, and Newark it is meeting with marked success, and the movement is attracting nation-wide attention from educators and boards of education.

Various terms, such as "platoon," "duplicate," and "alternating," are used in referring to this form of organization. "Platoon" is the word most widely used. The following statement embodies the fundamental principles of the plan: Platoon organization is that administrative plan by which the school is divided into two major sections and the program of work so arranged that while Division X is doing work in the tool subjects Division Y is doing work in special subjects or activities, or vice versa; a balanced program is provided so that each subject or special activity has a definite time allotment; the curriculum is so enriched and diversified that more time and attention are given to the special subjects. Platoon organization divides the day into two equal parts. The division as to curriculum which is perhaps most widely adopted is shown in Table I.

TABLE I

DIVISION OF THE SCHOOL DAY (6 HOURS) IN THE PLATOON SCHOOL

One-Half Day to Home-Room Subjects	One-Half Day to Special Subjects
Reading	Citizenship
Arithmetic	Auditorium
Spelling	Social science
Language	Literature and library
Writing	Music
	Art
	Manual arts
	Home economics
	Physical training
	Extra-curricular activities

The general schedule used in carrying out the division of subjects is presented in Table II.

TABLE II

GENERAL SCHEDULE ADOPTED IN THE PLATOON SCHOOL

Time	Platoon X	Platoon Y
9:00–10:30	Home rooms	Special rooms
10:30–12:00	Special rooms	Home rooms
1:00– 2:30	Home rooms	Special rooms
2:30– 4:00	Special rooms	Home rooms

II. ADVANTAGES

Numerous arguments may be advanced in favor of the platoon plan. A few of the more fundamental advantages may be outlined as follows:

1. As pointed out by the United States Bureau of Education, the traditional school is of the "peak-load" type, requiring one seat for each pupil, while the platoon school is of the "balanced-load" type. Under traditional organization, when children are in the auditorium, manual-training shop, home-economics department, or any special room, their home room is idle. Under platoon organization it is possible to have every room and department, including the playground, occupied all the time. In other words, the platoon type of organization means 100 per cent efficiency in the use of the school plant.

In a modern building with traditional organization the average is probably not greater than 75 per cent efficiency. In other words, platoon-school organization makes possible considerable increase in the capacity of the school plant. In Detroit the average increase in the capacity of school buildings has been approximately $33\frac{1}{3}$ per cent. In the Greenwood School in Kansas City approximately 320 children would now be on half-day sessions if it were not for the platoon organization. Superintendent D. B. Corson, of Newark, New Jersey, says that they now have twelve platoon or alternating schools and that to take care of the children in these twelve schools under traditional organization would require additional rooms at a cost to the school district of $1,092,000.

2. Platoon organization provides a balanced program. By this is meant that platoon organization has a place for each subject of the curriculum, giving to it a definite amount of time which cannot be taken for other work. The three hours devoted to the tool subjects in the home rooms is very zealously guarded, so that the time which is allotted to one of these subjects is not taken for manual training, home economics, physical education, music, or any other special activity. The other three hours of the day, devoted to special subjects, take care of many of the various forms of special activities which, in the traditional school, are often termed "interruptions." Two years ago the Co-operative Council of Teachers made a list of twenty-two "interruptions" in the elementary schools of Kansas City. The list is as follows: banking, Bible school, corrective gymnastics, domestic science, gymnasium, home causes, interruptions from the school office, manual training, milk-serving, music appreciation, nurse, orchestra, other causes, parents, parent-teacher associations, playground, private music lessons, short Friday, symphony concerts, tests, visual instruction, and weighing.

Under platoon organization nearly all these so-called "interruptions" have their definite place on the program. The only ones that continue to occur in home rooms, thus interrupting the work in the tool subjects, are home causes, interruptions from the school office, parents, parent-teacher associations, tests, and symphony concerts; that is, only six appear as "interruptions" in the platoon school. These could not, of course, be eliminated under any program. In

other words, under platoon organization nearly all the activities which are carried on in the elementary school are neither interruptions nor extra-curricular activities but regular school work, having a definite place on the school program.

3. Platoon organization offers opportunity for specialization on the part of teachers; that is, each teacher can be assigned to teach the subject or subjects for which she is best adapted. The teacher with unusual ability in music is placed in charge of the music; the teacher especially qualified teaches art; and so on for all special subjects, thus avoiding the inefficiency and loss of time due to poor teaching when every teacher is expected to be a specialist in the fifteen or eighteen different subjects now taught in the intermediate and upper grades.

4. Most important for consideration, perhaps, is the fact that the platoon school provides for the broad social development of the child. William P. Burris, of the University of Cincinnati, has said, "The platoon school is a plan for giving to the child a broader social experience." Many other leading educators take much the same view. This broadened social training should result from the fact that the platoon school is the only type of school organization that provides a balanced program of training. The platoon school not only offers maximum efficiency in the subjects usually taught in the traditional school but, through the work in the auditorium, offers an opportunity for developing initiative, leadership, self-expression, and good citizenship, such as is offered under no other plan of organization.

5. The platoon school, as organized in Kansas City, is neither ultra-radical nor ultra-conservative. It represents a reorganized traditional school situation calling for no change in the length of the school day, little or no change in the modern school plant, a minimum amount of equipment, and a situation in which the professionally trained teacher can adjust herself if she is properly assigned. Because it is not radical and because it offers advantages superior to those offered by the traditional organization, it appeals to the parents. So far as we have been able to learn, the parents in Kansas City think that the organization offers superior training to the children. We have had only one adverse criticism, and that is that

there is a tendency for the children to lose pencils, tablets, and wraps. This difficulty, however, is gradually being taken care of and will be entirely corrected when proper locker facilities are provided.

III. ORGANIZATION AND ADMINISTRATION

A theory, no matter how sound it may be, can be successfully demonstrated only when carefully worked out plans have been equally carefully executed. Nowhere is this more true than in the matter of school organization. The platoon school, like the junior high school, has been uniformly successful and has met with popular favor wherever tried provided the following vitally important elements have been considered and provision made for each: (1) a building adapted to the particular type of organization, (2) adequate equipment, (3) a reorganized curriculum, (4) adequate supervision, and (5) a professionally trained, co-operative group of teachers.

1. *The platoon-school building.*—The platoon-school building may be either a remodeled or a new building. It should have a gymnasium, an auditorium, and various special rooms. These special rooms may be for library work, science, music, art, home economics, and manual arts, or for such other special subjects as may be desirable and essential in a given community. Some or all of these special features are necessary in any school that has a really socialized program. In the platoon school facilities for carrying on various special activities become administrative necessities as well as socializing influences.

2. *Adequate equipment.*—Adequate equipment must be provided for the special departments. The "must" is used advisedly. Adequate equipment in the platoon school becomes of equal importance with adequate equipment in the junior or senior high school. As it is necessary that the high-school auditorium, library, laboratories, and studios be properly equipped if the high school is to do standard work, so must the various special rooms of the platoon school be properly equipped if the organization is to be successful.

A place must be provided for keeping wraps and other property belonging to the children of the two platoons; lockers or hooks may be placed in the corridors, or existing cloakrooms may be used. Such

provision is essential for one platoon at least; because of play periods out of doors when wraps are needed, it is a convenience if provided for all children in both platoons.

3. *The curriculum.*—The curriculum of the platoon school is divided into two major parts: (*a*) home-room studies and (*b*) special activities. The problem of the organizer and the supervisor is to see that an equal division is properly maintained and, at the same time, to secure that degree of correlation and unification necessary for *oneness of effort in the whole curriculum.*

a) *Home room.*—The home room in the platoon school has the following purposes: (1) It provides a school "home" for the child. This school home is presided over by a teacher who is adviser, counselor, and friend—in short, the child's school "mother." (2) It provides adequate time for uninterrupted instruction in the fundamentals or tools of knowledge. (3) It provides, by close correlation and co-ordination with the other departments of the school, for the inculcation of citizenship ideals, attitudes, and habits. (4) It provides for the attendance, deportment, scholarship, and other records of the pupils.

The content of the home-room subjects (reading, writing, arithmetic, spelling, and language) is not essentially different from the content of such subjects in the traditional school. With a competent teacher devoting all her teaching efforts to these subjects, methods should be greatly improved, and the subject-matter should be vitalized and enriched through correlation with the special departments of the school.

b) *Special activities.*—The special activities of a platoon school (auditorium, social science, music, art, library, manual training, home economics, gymnasium, and the playground), with specially trained teachers in charge, have social and self-expression value much beyond that which the traditional school can offer. The special teacher who is able to do intensive work along one line can greatly enrich her program and make the training fit the needs both of the individual and of the group.

(1) *The library.*—The two departments that are distinctly new features in the platoon school are the library and the auditorium. The purpose of the work in the library is twofold: first, through the

library an appreciation and love of good literature is built up; second, the children are taught to be independent in the finding and use of material in books and magazines. In Kansas City, in order to accomplish these aims, each group of children, beginning with the fourth grade, goes to the library for thirty minutes each day. In addition, groups of children may be sent to the library at any time during the day for special reading or study. The library is open before school and at noon for children who wish to read or study. The library schedule during a given week is, of course, subject to change, but, in general, is as follows: Monday, current events and reference work; Tuesday, reference work and reading, chiefly for social science; Wednesday, literature, chiefly from home-reading list; Thursday, reference work and reading, chiefly for social science; and Friday, free reading.

(2) *The auditorium.*—Of first importance to the success of platoon organization stands the work in the auditorium. The auditorium should become the citizenship and unifying center of the school. Failure on the part of the organizer and the supervisor properly to plan the auditorium program spells failure for the whole organization unless the peculiar work which the auditorium should do is cared for elsewhere. The breakdown in departmental organization in the elementary school and the few instances of failure of the junior high school have been due to the lack of this unifying influence which the auditorium in the platoon school undertakes to provide. In attempting to outline this work, let us consider, first of all, what should *not* be done.

The auditorium must not become a place for formal instruction in music, civics, or health. It must not become a dumping-ground, where anything that has no other place in the school can be assigned and where, as a result, the program becomes crowded with work of doubtful value. It must not become a show place, where the brightest pupils are constantly put forward for the entertainment of visitors. The auditorium is not primarily a place to train children to take part in public entertainment. It is not an advertising medium, through which various and sundry announcements can be made, often to the exclusion of all else. The auditorium period is not one during which the teacher entertains by telling interesting or funny

stories. Many of these things may be included in part but not to the exclusion of more valuable activities.

No effort will be made to give in detail the program of the auditorium. The following abridgment of a bulletin used in the platoon schools in Kansas City gives a general conception of the principles underlying the program and of the means used in working out these principles:

MAJOR AIMS OF WORK IN AUDITORIUM

1. Training in practical citizenship through the opportunity afforded for self-expression.

2. Inculcation of those habits, attitudes, and ideals essential to good citizenship.

3. Unification and co-ordination of all the school's efforts toward socialization.

MEANS

1. A definite program of activities scheduled for the auditorium, carried on daily with groups of not more than eighty or ninety pupils; such parts of this program as may be valuable in connection with studies in other departments to be so used.

2. Regular work of home and special rooms which may be valuable as self-expression and citizenship material to be used in the auditorium.

3. Special co-operative projects between the auditorium and home and special rooms to be worked out as occasion may arise.

4. Appreciation work in literature, language, art, and music to be given in the auditorium.

A WORKING PLAN

1. The auditorium teacher is expected to keep in touch with the home-room and the special teachers in the following manner:

a) Through conferences with individual teachers. The chief question in these conferences should be: What correlation of effort in work now being done or planned is possible and worth while?

b) Through visitation in home and special rooms.

c) Through pupil "reporters" whose business it is to make concise oral or written reports of any work being done in any of their classes which in their opinion might prove valuable for use in the auditorium.

2. The home-room and special teachers are expected to keep the auditorium teacher informed as to

a) Stories used in reading or language suitable for dramatization in the auditorium.

b) Memory selections.

c) Compositions—oral and written—valuable in training for citizenship.

(3) *Other special subjects.*—Space will not permit further discussion of the special subjects in the platoon-school curriculum other than brief statements regarding science, music, and art in the platoon schools of Kansas City.

Under science are included nature-study, geography, history, and civics. A formal textbook treatment of these subjects is not used. Supplementary reading material in the intermediate and upper grades is taken from papers, magazines, and books other than the texts. Material is gathered from nature and observation for much of the geography work. Attention is given to the making of herbariums, the collecting of commercial exhibits, and the accumulating of loan collections through contributions from the pupils of curios and materials of historic and geographic interest. The work of the science department is closely correlated with much of the work in the auditorium. Especially are the social studies in the science room closely connected with the citizenship phases of the work of the auditorium.

The music and art rooms are real studios in which the child gains an appreciation and love of good music and art. To this end both the music department and the art department frequently use the auditorium, and often the appreciation work from either is taken into the auditorium for the instruction and entertainment of other groups. One auditorium period each week is devoted to music appreciation.

IV. SUPERVISION AND ADMINISTRATION

In order that there may be sufficient supervision in the platoon school to insure the unification and co-ordination of plans and purposes necessary to the highest success of the organization, the principal should be as free as possible from clerical and routine work; his major problem, then, will be supervision and organization. To this end the principal should have a competent office clerk. In the larger schools he should also have an assistant who devotes a part of his time to relieving the principal of supervisory and administrative duties.

V. THE TEACHING CORPS

The teaching and supervisory corps of the platoon school from the principal down must be not only competent and capable but in

full accord with modern trends in education. They must believe in the social ideals of the school; they must believe that platoon organization offers one means toward a greater realization of these aims. Believing in the school and its purposes, each teacher must be alert, professional, high-minded, and co-operative in order that these ideals may be attained to the highest possible degree in the life of each child.

VI. THE PLATOON-SCHOOL PROGRAM

Of equal importance to the success of the platoon plan through its building, equipment, and trained teachers is the making of a workable program for carrying out the plan. In the preparing of such a program the pupil must be the primary consideration. Therefore, the program should be so arranged that each group of children fares equally with every other group in time allotment and position on the program. For example, in making a program, the easiest thing is to assign groups to special activities so long as the rooms hold out and then send all unassigned groups to the playground for one or two hours each day or permit them to observe other classes. To carry out such a scheme is rank injustice and spells failure to the whole organization. The program-maker must devote hours—days, if necessary—to an equitable time allotment and to the assignment of each group in the school. In the second place, the program must be complete, plain, and thoroughly understood by each teacher in the organization.

VII. ADAPTING THE PLATOON PLAN TO THE LOCAL SITUATION

The question is often raised as to the size of school to which the platoon program is best adapted. The question may as well be asked, To what size school is traditional elementary-school organization best adapted? Platoon organization is possible in a graded school of any size provided the building is adapted to the organization. A program may be worked out under the same plan of procedure as is used in Kansas City. In a smaller school of from six to twelve teachers, the high degree of specialization in the assignment of teachers is not possible. The home-room teacher must teach more than one grade; the special teacher must teach more than one subject.

In adapting the program to a given situation, various changes may be made in the time allotment. The day may be lengthened; the periods may be made longer or shorter; and the amount of time devoted to a particular subject may be changed to fit local needs. Part of the school may run on the platoon plan and part on the traditional plan. Science may be taught by the home-room teacher. Auditorium and music may be combined provided the dangers previously mentioned are avoided. In short, the platoon plan, because it is so very flexible, may be made to fit any situation if proper skill is employed in working out and executing the program.

VIII. CONCLUSION

Enthusiasm for platoon organization does not mean that it is a panacea for all the ills to which the public school is heir. It has its weaknesses, but it is a safe departure from the traditional toward the ideal. The platoon plan is the one form of elementary-school reorganization which has generally met with hearty public approval when given a fair trial; and it will continue to meet with public approval in any community where the superintendent and the principal have real vision as to its possibilities and, at the same time, recognize and solve its problems.

THE SEATTLE PLAN OF CO-OPERATIVE RESEARCH IN CITY-SCHOOL ADMINISTRATION

FRED C. AYER
University of Washington

The Seattle Board of School Directors in September, 1922, after giving some study to the comparative merits of school surveys made by outside educational experts and of educational research carried on by workers within the local staff, decided to combine, if possible, these two types of special investigation. To this end, they authorized the organization of a Department of Research, prepared a list of topics for special investigation, and employed on a part-time basis a professor of school administration at the University of Washington to direct the work of the newly organized department.

It was apparent at the outset that both the authoritative method of the standard school survey and the analytical method of educational research were desirable in attacking the problems involved in the administration of the Seattle schools. In the conventional school survey it has been customary to call in from three to twelve school experts who give varying amounts of time to a comparatively rapid checking up of local school conditions and activities on the basis of standards which prevail elsewhere or which experimental study has demonstrated to be authoritative. In so far as local educational activities are similar to standardized conditions elsewhere, the method of the school survey has many obvious advantages. On the other hand, there are many important school problems which are still in the process of solution and many more special educational problems which are closely connected with local conditions. Such problems can be solved only by the painstaking study which is characteristic of scientific research By combining the educational forces of university and public school in Seattle it was thought possible to organize a department of research covering both types of investiga-

tion. The present article describes a number of the more important aspects and outcomes of the co-operative work which was undertaken.

PROGRAM OF INVESTIGATION

The Board of School Directors prepared the following program of research with the generous provision that the time and the order of the reports on the topics listed were to await the needs of care in research on the one hand and the availability of pertinent data on the other.

A. Curriculum.
   1. Time distribution. The number of hours given to the various subjects as compared with other school systems.
   2. Scope. The number and variety of subjects. Extent of electives.
   3. Adaptability. How suited to the needs of the children and to the needs of Seattle?
   4. Organization. Size of classes, 8–4 plan, time schedule, daily program, sequences, etc.
   5. Extra-curricular activities.

B. Instruction, methods, and supervision.
   1. Principles, devices, and technique.
   2. Textbooks and their uses—assignments. Use of high-school library.
   3. Results of achievement tests.
   4. Directed teaching and supervised study.
   5. Supervising activities. Scope and organization.
   6. Estimating the worth of teachers.
   7. Estimating the worth of supervision.

C. Progress of pupils.
   1. General status of Seattle system.
   2. Census, attendance, promotion, failures, eliminations.
   3. Marking systems and intelligence tests. Relative value of tests and measurements to teachers' rating of pupils.
   4. Advisory system.
   5. Records.

During the past two years research studies, particularly those of the comparative type, have been organized around each of the foregoing topics. The results secured from a number of these studies have been of sufficient importance to receive treatment in reports of the Department of Research and in various educational journals. Only such studies have been reported as have appeared to have prac-

tical value. For this reason the foregoing program must be regarded as a program of investigation rather than as a list of topics for special report.

BASIS OF CO-OPERATIVE RESEARCH

Every city which is the home of a college or a university department of education has the basis of a practical organization for constructive educational research. As a matter of fact, the city need not necessarily be a university town if it can establish intimate contact with a university department of education. In setting up such an organization in Seattle, it was immediately possible to turn over certain statistical problems, such as city-school time allotments, to graduate students in the University of Washington who had the interest, time, and technique to work up the necessary bibliography and statistics. The members of a seminar class at the University of Washington were able to make a study of the Seattle schools, following the outline given, in a manner which greatly stimulated their own collegiate work and at the same time yielded valuable data concerning the Seattle schools. There are in most cities a considerable number of teachers and principals who have had special training in the methods of educational research and who, with very little direction, are both inclined and able to devote their leisure hours to practical studies dealing with local educational problems. This has been particularly true in Seattle. A number of such studies have had sufficient merit to be published in educational journals or to be accepted as theses for advanced academic degrees in addition to being of definite practical value to the administrative staff of the Seattle schools.

The Seattle Department of Research, which was organized to centralize these various investigational activities, has differed in one important respect from the conventional city-school bureau of research. An examination of the several summary studies which have been published concerning the activities of research departments in the various city school systems of the United States reveals the fact that a very considerable amount of time and energy has been consumed in gathering statistics, giving tests, and doing other types of standardized school work which are executive rather than research in character. Under the Seattle plan the Department of Research is held responsible for no work other than pure research. Statistical

or testing work which is done solely for measurement, guidance, or publicity purposes is carried on by the departments concerned, usually with the assistance of the Child-Study Laboratory. In this way the Department of Research is free from the serious strains on time and independence which executive contact with local school problems inevitably imposes.

The Seattle Department of Research, moreover, emphasizes administrative research rather than research in the fields of classroom products and mental testing. Competent work in administrative research is difficult but gives promise of great educational returns. Probably the best method of explaining the general program of research which has been developed under the co-operative plan will be to illustrate several of the studies and activities which have been carried on. The following topics have been selected for this purpose: (1) time allotment, (2) curriculum-making, and (3) co-operative studies.

TIME ALLOTMENT

A series of studies have been made with reference to the comparative amounts of time apportioned to the elementary-school subjects. The data reveal certain general tendencies with reference to the three groups of subjects known as the three R's, the content subjects, and the special subjects. The three R's are language, reading, spelling, writing, and arithmetic. The content subjects include history, civics, geography, and science. In the present comparison hygiene, which is sometimes called a special subject, is included under science. The special subjects include physical training, play, drawing, music, shop work, domestic science, etc.

By making use of the data contained in the studies by Payne[1] in 1905, Holmes[2] in 1915, and the writer[3] in 1924, it is possible to note a distinct historical movement with reference to these three groups

[1] Bruce Ryburn Payne, *Public Elementary School Curricula.* Newark, New Jersey: Silver, Burdett & Co., 1905.

[2] Henry W. Holmes, "Time Distributions by Subjects and Grades in Representative Cities," *Minimum Essentials in Elementary-School Subjects—Standards and Current Practices*, pp. 21–27. Fourteenth Yearbook of the National Society for the Study of Education, Part I. Chicago: University of Chicago Press, 1915.

[3] Fred C. Ayer, *Studies in Administrative Research.* Seattle, Washington: Department of Research, Seattle Public Schools, 1924.

of subjects. This movement is shown graphically in Figure 1, which is based on the detailed data contained in these three studies. This figure shows that the percentage of the school week allotted to the three R's diminished from 65 in 1888 to 50 in 1924. This is due chiefly to the reduction in the time allotted to spelling and writing. In contrast to the decreased time allotment for the three R's, the percentage of the school week allotted to the content subjects and the special subjects has gradually increased. The content subjects have increased from 11 per cent to 16 per cent of the weekly time allotment, and the special subjects have increased from 24 per cent to 34 per cent. Other facts, such as the increased length of the school day, enter into the proper interpretation of Figure 1. These facts definitely concern the research student, but for the purposes of the present article the figure is sufficiently indicative of the increased attention now being given to the content subjects and the special subjects.

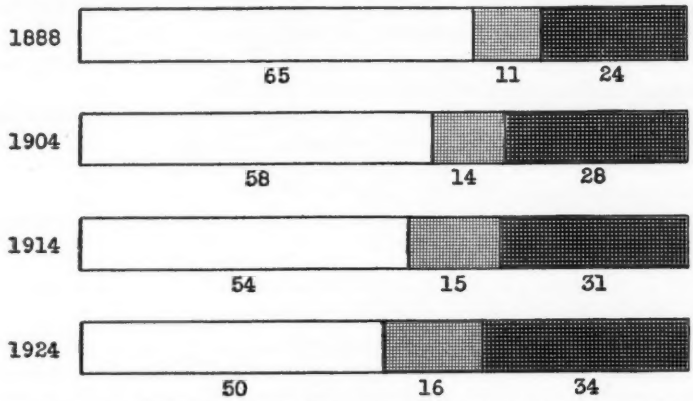


FIG. 1.—Percentage of the school week allotted to the three R's, the content subjects, and the special subjects in 1888, 1904, 1914, and 1924. (The first part of each bar represents the three R's; the second part, the content subjects; and the third part, the special subjects.)

CURRICULUM-MAKING

Another type of work with which the Seattle Department of Research has had more or less direct contact may be discussed under

the conventional heading "curriculum-making." In the phase of this work which pertains to the methodology of curriculum-building the Department of Research has taken the lead. A detailed report[1] was submitted concerning the problem of curriculum revision, in which the local courses of study were analyzed with reference to modern needs and current curricular changes. The major objectives of education which should serve as the primary standards for the selection of curriculum materials were pointed out. The following principles of curriculum-building, for example, were enumerated and discussed in detail with reference to child-life:

1. The course of study must be organized to conform to the physical and mental characteristics of the different stages of child-life.

2. The course of study must be sufficiently flexible to fit the varying characteristics of groups of children being educated.

3. The course of study must take account of the co-operative agencies of education in Seattle.

4. The course of study must utilize activities and experiences selected from the current life of school children.[2]

It will not be out of place to include two pertinent paragraphs which appeared in connection with the foregoing principles.

While it is true that there are certain fundamental common characteristics of child-life at the several levels of development, it is equally true that children vary one from the other in many important traits. The course of study must provide for these individual differences. Such differences are those due to varying mental abilities, emotional attitudes, physical condition, previous preparation, home conditions, and educational destination. The necessity for flexibility is apparent from the kindergarten up. The danger of an indiscriminate stretching of the course of study has been emphasized in a previous report. There should be a definite minimum of work required of all, a complementary required field in which pupils may make certain choices, and a supplementary field of suggested optional work.[3]

Besides its great natural resources, Seattle needs two human elements to carry out its program of future expansion, namely, knowledge and civic pride. Other agencies and organizations will always be of vital importance, but in the long run it is the public-school program that will provide the knowledge and civic pride essential for Seattle to become the great seaport and metropolis, culturally and industrially, that is now openly prophesied by social and historical analysis. A school generation is a short time in the life of a city. More than one will pass ere Seattle achieves the goal of its present ambition. The leaders who

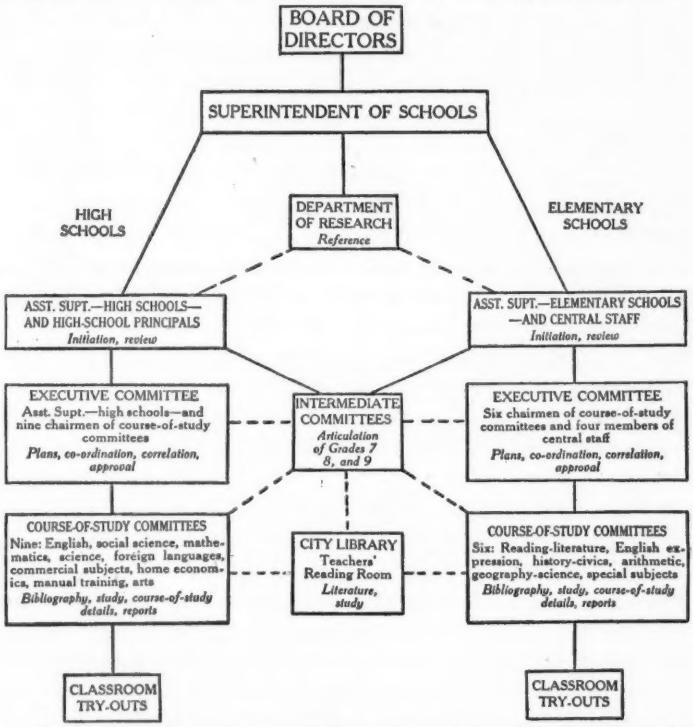
[1] Fred C. Ayer, *op. cit.*, chap. iii.

[2] *Ibid.*, pp. 40, 44, 45.

[3] *Ibid.*, p. 44.

will guide and the spirit which will stir them are now being patterned according to the course of study in the Seattle public schools. Can anyone with a grain of social vision doubt the importance of painstakingly shaping the curriculum to further the great need which Seattle has for future human loyalty and resourcefulness?[1]

In the second, or executive, phase of curriculum-building, the Department of Research has served in an advisory capacity only.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Reference
ELEMENTARY SCHOOLS
ASST. SUPT.—HIGH SCHOOLS—AND HIGH-SCHOOL PRINCIPALS
Initiation, review
ASST. SUPT.—ELEMENTARY SCHOOLS—AND CENTRAL STAFF
Initiation, review
EXECUTIVE COMMITTEE
Asst. Supt.—high schools—and nine chairmen of course-of-study committees
Plans, co-ordination, correlation, approval
INTERMEDIATE COMMITTEES
Articulation of Grades 7, 8, and 9
EXECUTIVE COMMITTEE
Six chairmen of course-of-study committees and four members of central staff
Plans, co-ordination, correlation, approval
COURSE-OF-STUDY COMMITTEES
Nine: English, social science, mathematics, science, foreign languages, commercial subjects, home economics, manual training, arts
Bibliography, study, course-of-study details, reports
CITY LIBRARY
Teachers' Reading Room
Literature, study
COURSE-OF-STUDY COMMITTEES
Six: Reading-literature, English expression, history-civics, arithmetic, geography-science, special subjects
Bibliography, study, course-of-study details, reports
CLASSROOM TRY-OUTS
CLASSROOM TRY-OUTS

FIG. 2.—Organization for the revision of the curriculum in the Seattle public schools. (Straight connecting lines indicate responsibility; dotted lines indicate co-operation.)

This has consisted chiefly in helping the administrative staff plan a method of practical curriculum-building. The general plan which was ultimately adopted is indicated in Figure 2. In the absence of

[1] *Ibid.*, p. 46.

more detailed explanation it may be said that the plan of curriculum-building exhibited in this figure incorporates three major principles: (1) The curriculum must embody the best results of modern research and educational experience. (2) Its teaching form, in order to be locally successful, must be prepared by the local instructional staff. (3) Its final content must rest upon experimental classroom try-outs.

The Department of Research has also been called upon to advise the special curriculum committees as to the best methods of work and to assist in preparing bibliographies of the important literature which pertains to the various subjects. Some criticism has appeared elsewhere concerning the local character of this undertaking, but to the author this is essential to its ultimate success. Expert advice, however, has not been neglected. Besides the aid which has come from the local university staff, a number of special authorities have been invited in conference from more distant fields, including such leaders as O. W. Caldwell, W. S. Gray, Edgar Dawson, and W. C. Reavis. Others are to follow. As a second means of avoiding provincialism, numerous members of the local curriculum committees have enrolled in the specially related summer courses which have been given in the various educational institutions of the country. Others have systematically reviewed the work in curriculum-making which is being done in other cities, such as Denver and Los Angeles.

CO-OPERATIVE STUDIES

Finally, we may consider a minor, but none the less important, phase of the work of the Department of Research, the co-operative contact with local research studies. Here again the position of the Department of Research is purely advisory. Many research studies are carried on in the Seattle schools which are entirely independent of the Department of Research. However, the consulting co-operation of the Department of Research is always at hand for those investigators who desire it. The extent of this co-operation varies all the way from brief criticism of questionnaires to studied utilization of the results of the more important investigations. Some of the best materials utilized by the Department of Research have grown out of special studies made by local teachers and principals. The general character of the advisory contact which the director of the Depart-

ment of Research has with the local educational staff is suggested by the following record:

October 2.—Principal. Questionnaire criticized. 5 minutes.

October 4.—Supervisor. Bibliography. 15 minutes.

October 7.—Chairman of the Committee on the Preparation of a Plan of Teacher-rating. 30 minutes.

October 9.—President of the Seattle Supervisors and Superintendents League. Criticism of questionnaire. 15 minutes.

October 9.—Superintendent. Research consultation. 30 minutes.

October 10.—Principal (editor of the Fourth Yearbook of the Department of Elementary School Principals). Construction of questionnaire. 60 minutes.

October 11.—Two principals. Special research. 60 minutes.

October 15.—Supervisor (member of Department of Superintendence Subcommittee on Health and Physical Education). Advice as to procedure. 20 minutes.

The advisory activities of the Department of Research which are made possible by the contacts indicated in the foregoing list are (1) to refine the methods of research being used by members of the local educational staff, (2) to guide local research toward practical outcomes, and (3) to utilize the more important studies by facilitating their publication. A very important part, for example, of a recent report by the author on promotions and failures grew out of a local study originally sponsored by Miss Almina George, head of the Department of Intermediate Grades, and a committee of interested teachers.

This study included a careful inquiry into the causes of failure and the subjects in which failure occurs in the Seattle intermediate grades. The investigation included all subject failures in Grades IV, V, and VI for the first semester of the school year 1922–23. After the committee had given some time to a study of the possible causes of failure, a comprehensive list of causes was prepared. The various elementary-school teachers in the Seattle schools then made a study of their pupils who had failed and, so far as possible, assigned the particular cause chiefly responsible for the failure of each pupil. A single table from this study must serve to illustrate its general character.

Table I discloses the reported causes of failure by grades. This table is worthy of thoughtful consideration. While it is undoubtedly true that teachers have frequently assigned the wrong cause to cer-

tain cases of failure, the intimate knowledge which the teachers possessed of the actual individual situations makes the table of genuine significance. It must be kept in mind that the teachers' judgments in these cases were fortified by standard intelligence and achievement records. The similarity of the percentage distributions in the different grades is noteworthy. The causes of failure deserve official study and practical consideration. They are listed in the table in the descending order of the percentage of total frequency.

TABLE I

CAUSES OF FAILURE IN 1922–23 IN GRADES IV, V, AND VI OF THE SEATTLE PUBLIC SCHOOLS

CAUSE	FOURTH GRADE		FIFTH GRADE		SIXTH GRADE		TOTAL	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Low mentality	255	19.7	192	17.6	228	17.1	675	18.2
School study habits	190	14.7	192	17.6	233	17.5	615	16.5
Previous preparation	105	8.1	99	9.1	130	9.8	334	9.0
Indifference toward school	84	6.5	111	10.2	121	9.1	316	8.5
Home environment	110	8.5	79	7.2	119	8.9	308	8.3
Home study habits	89	6.9	76	7.0	125	9.4	290	7.8
Physical condition	98	7.6	70	6.4	89	6.7	257	6.9
Moving about	68	5.2	63	5.8	69	5.2	200	5.4
Size of class	81	6.3	52	4.8	26	1.9	159	4.3
Course too heavy	72	5.6	32	2.9	40	3.0	144	3.9
Emotional condition	33	2.5	35	3.2	43	3.2	111	3.0
Outside activities	20	1.5	23	2.1	43	3.2	86	2.3
Unsatisfactory textbooks	59	4.6	15	1.4	9	.7	83	2.2
Domestic trouble	28	2.2	25	2.3	27	2.0	80	2.1
Double promotion	1	.1	25	2.3	21	1.6	47	1.3
Teacher's absence	0	0.0	1	.1	9	.7	10	.3
Total	1,293	100.0	1,090	100.0	1,332	100.0	3,715	100.0

Space prevents an analysis here of the specific significance of this table. When, however, the various causes of failure for which the school has been chiefly responsible have been analyzed, it is possible to recommend certain changes in educational procedure; when the particular pupils involved are given individual attention, it is possible to render definite educational guidance. The chief service of the Department of Research is to marshal this array of statistics in a form convenient for local administrative consideration and, more remotely, for the general welfare of educational research.

DISCOVERING THE OBJECTIVES OF HEALTH EDUCATION

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In the widely circulated *Cardinal Principles of Secondary Education*,[1] we find a statement of the seven fundamental lines or fields of education. The first of these is health. There is here the implication, as in Spencer's *Essays on Education*, that the primordial, possibly even the most important, field of education is training for physical well-being.

Scientific curriculum-making is naturally intent on finding those *activities* which are necessary in the upbuilding and maintenance of the physical organism. In large measure, these are the activities that are involved in combating the many things inimical to good health. If we can know what these hostile and difficult things are, then we at least have evidence relative to the kinds of activities to be organized into a health development and maintenance program.

It is possible to get evidence from a variety of sources. In a study[2] recently made by W. L. Meyers, the question was, "What are the health matters which tend to give concern to the members of the general community?" For evidence, Mr. Meyers went to the health columns of certain daily papers and analyzed the letters relating to health matters which were there published. He included in his study 175 issues of the *Chicago Daily Tribune* for the years 1918, 1921, and 1923 and 140 issues of the *Chicago Daily News* for 1918 and 1919. He selected the issues in such a way as to have them rather evenly distributed over the years in order to eliminate seasonal differences. He found that these letters presented questions relative to about thirty-five health difficulties.

[1] Bureau of Education Bulletin No. 35, 1918.

[2] A curriculum investigation undertaken at the University of Chicago.

Mr. Meyers also analyzed the general discussions of the health editor which appeared in the same issues of the newspapers, since these discussions would be reactions, more or less, to the kinds of letters received. At the same time they would represent the editor's more expert judgment relative to the problems with which the general public ought to be concerning itself.

Mr. Meyers' findings are presented in Table I. The items are arranged in the order of the frequency of mention.

It is not certain that the items of most frequent mention are always the items of greatest importance. They are fairly certain, however, to be important matters, which ought to be effectively taken care of in the upbringing of the younger generation. This does not, of course, necessarily mean that they are the things to be taught first. Everything is to be taken care of at the proper time and in the proper place. The evidence here presented looks only to the objectives. It does not, in any wise, indicate the time or place of giving the training.

A different approach to the general problem is indicated by the question, What health matters are referred to in the general news items and the discussions in newspapers and magazines? As evidence, the writer listed the articles relating in any way to health or physical well-being in 270 issues of the *New York Times* for 1924 as presented in the quarterly index. He also collected the health topics treated in magazine articles for the three years from 1919 to 1921 as presented in the *Readers' Guide to Periodical Literature*. He found 273 different health topics covered, or at least indicated, in the issues of the newspaper and of the different magazines.

The limitations of space will not permit the printing of the entire list. In Table II, therefore, are presented only those topics referred to twenty or more times.

In order to show how closely the matters presented in health textbooks correspond to the topics discussed in the general reading of the adult world, the last column in Table II gives the total number of times each topic was listed in the indexes of ten widely used textbooks on hygiene and sanitation. It will be observed that there is no high degree of parallelism in the frequencies in the two types

TABLE I

FREQUENCY OF MENTION OF HEALTH PROBLEMS IN CERTAIN SECTIONS OF 175 ISSUES OF THE "CHICAGO DAILY TRIBUNE" AND 140 ISSUES OF THE "CHICAGO DAILY NEWS"

	Questions from Laymen	General Discussions of Health Editors	Total
Foods, nutrition	139	47	186
Information as to motherhood, parental knowledge, and child care	85	32	117
Transmissible diseases (82), including venereal diseases (24)	67	39	106
Diseases of the respiratory tract: nose and throat (32), the lungs (42)	43	31	74
Diseases of the stomach, intestines, and peritoneum	59	11	70
Diseases of the skin	56	9	65
Muscular and physical activities: sports, exercises, and games	31	15	46
Nervous diseases	30	15	45
Unclassified diseases, such as rheumatism, cancer, hernia	20	7	27
Chemical and drug information	17	9	26
Care of the feet	20	5	25
Diseases of the heart	18	5	23
Diseases of the urinary system: the kidneys (11), the bladder (9)	15	5	20
Diseases of the blood and blood vessels	15	4	19
Diseases of the mouth and esophagus (3), including teeth (14)	11	6	17
Vermin and insects	11	6	17
First-aid methods	12	5	17
Ventilation, sunlight, and air	8	9	17
Consanguinity and heredity	12	3	15
Proper weights and heights for different ages and sexes	14	.....	14
Care of the hair and scalp	13	.....	13
Diseases of the glandular system	9	4	13
General health discussions relative to racial deterioration, contributing causes of disease, prolonging life	.....	12	12
Diseases of the eye	2	8	10
Labor conditions in relation to disease	.....	10	10
Climate in relation to disease	8	1	9
Diseases of the spleen and liver	8	1	9
Undesirable habits	6	3	9
Clothing	3	5	8
Vaccination and inoculation	5	3	8
Sleep	5	2	7
Diseases of the bones and joints	6	.....	6
Disease of the rectum	5	1	6
Temperature and heating	2	4	6
Personal cleanliness	4	1	5
Care of the sick	.....	5	5
Diseases of the ear	3	1	4
Spitting, sneezing, and coughing	.....	4	4
Obesity and health	.....	4	4

TABLE I—*Continued*

	Questions from Laymen	General Discussions of Health Editors	Total
Plastic surgery		2	2
Unspecialized labors in relation to health		1	1
X-ray evidences		1	1
Electricity in the treatment of disease		1	1
Benefits of prohibition		1	1
Types of pain and significance		1	1
Total	762	339	1,101

of material. We have conflicting evidence, therefore, with regard to the relative importance of the several topics.

A health matter of increasing importance at the present time is the danger from accidents. Accidents are very numerous and are increasing in frequency. It is important for educational purposes, therefore, to know the kinds of accidents which are to be avoided and for which training in avoidance should be given. In the issues of the *New York Times* and the magazines canvassed there were 2,741 news items dealing with accidents. The accidents were of many kinds, as indicated in Table III.

It is probable that the newspapers tend to present the more spectacular accidents in excess proportions and to give an incomplete picture of the more prosaic kinds of accidents. Yet we can be reasonably sure that those of frequent mention in the newspapers are matters to which serious attention should be given in the formulation of the program of training for physical well-being. It will be noted that the great majority of accidents are related to travel and transportation. It is obvious that in this field of human activity we are employing the most dangerous of human inventions. We shall continue to use them and in ever increasing measure. It is clear that the human race must learn to use them in such a way as to avoid the dangers. This is undoubtedly an educational problem of large importance.

For curriculum-making, we must secure evidence from all sorts of sources. In the foregoing material we have gone to the laymen by way of securing evidence. Over against these, however, are those specialists in health matters who have been carefully analyzing the

TABLE II

FREQUENCY OF MENTION OF HEALTH TOPICS IN NEWSPAPERS AND MAGAZINES AND IN TEXTBOOKS

	Newspapers and Magazines	Textbooks
Accidents	2,741	.....
Hospitals	203	9
Vital statistics	121	22
Drug habit	114	7
Child labor	105	.....
Foods, diet	101	154
Medical profession	93	.....
Narcotics	92	12
Insanity	83	4
Longevity	78	1
Micro-organisms	75	218
Milk	69	53
Recreation	69	3
Occupational diseases	58	14
Tuberculosis	55	137
Alcoholic beverages	55	119
Tobacco	55	48
Cancer	55	12
Athletics	52	6
Radium	50	1
Influenza	48	17
Mental defectives	47	17
Mortality	45	.....
Poisons	43	11
Intoxication	43	.....
Typhoid fever	40	53
Water supply	33	97
Garbage	32	25
Heredity	31	3
Nutrition	30	10
Noxious gases	29	.....
Foot-and-mouth disease	28	4
Teeth	28	42
Malaria	28	24
Vitamines	26	14
Overwork	26	.....
Insect propagation of disease	25	23
Sewage	25	12
Laundries	25	8
Exercise	24	53
Refuse	24	20
Blindness	24	3
Fire	23	4
Mental hygiene	22	3
Eugenics	22	2
Pets, animal	22	1
Ventilation	21	77
Housing and health	21	44
Ice	21	7
Disease (general)	20	97
Bathing	20	28
Smallpox	20	23
Rats	20	10
Machine guards	20	1

situation and preparing the textbooks which we are employing in training the younger generation. The writer analyzed ten of the commonly used textbooks in this field.[1]

TABLE III

DISTRIBUTION OF 2,741 KINDS OF ACCIDENTS DISCUSSED IN NEWSPAPERS AND MAGAZINES

Kind of Accident	Frequency	Kind of Accident	Frequency
Automobiles	1,024	Fireworks	11
Drowning	262	Canoeing	11
Shipping	220	Diving	10
Explosives	127	Boxing	9
Railroads	127	Submarines	8
Aeronautics	97	Falling objects	8
Falls	91	Baseball	7
Burns, scalds	65	Bicycles	7
Prevention	61	Suffocation	6
Auto prevention	59	Runaway horses	6
Street cars	59	Coasting	6
Asphyxiation	58	Cave-in's	5
Poisoning	44	Animal bites	4
Industrial	42	Bulls	4
Shooting	41	Football	4
Mining	32	Motor boats	3
Sports	30	Strangulation	2
Electricity	29	Bargain-sale crushes	2
Horseback-riding	22	Freezing	2
Subways	22	Chimneys falling	1
Buildings	21	Mountain-climbing	1
Elevated railways	21	Smothering	1
Motorcycles	19	Cuts	1
Accidents (general)	18		
Elevators	16	Total	2,741
Lightning	15		

This preliminary analysis was made simply by counting the items listed in the indexes of the several volumes and noting the aggregate frequency. A total of 348 health topics were discovered. Table IV presents the items which were indexed twenty or more times. This is but a small part of the entire list.

[1] Woods Hutchinson, *A Handbook of Health;* John W. Ritchie, *Primer of Sanitation;* Jean Broadhurst, *Home and Community Hygiene;* John W. Ritchie and Joseph S. Caldwell, *Primer of Hygiene;* Charles-Edward Amory Winslow, *Healthy Living;* Herbert W. Conn, *Physiology and Health,* Book II; Frances Gulick Jewett, *Physiology, Hygiene, and Sanitation;* Ralph E. Blount, *Health: Public and Personal;* Theodore Hough and William T. Sedgwich, *Elements of Physiology;* Jesse Feiring Williams, *Healthful Living.*

Even though the frequencies of the topics discussed are very different in the case of the health specialists and the laymen, it is clear from a casual examination of the series in Table IV that the items at the top of the list are matters of prime importance.

TABLE IV

HEALTH TOPICS TREATED TWENTY OR MORE TIMES IN TEN TEXTBOOKS

Topic	Frequency	Topic	Frequency
Micro-organisms	218	Colds	29
Foods, diet	154	Bathing	28
Tuberculosis	137	Nose and throat	28
Alcoholic beverages	119	Adenoids	28
Disease (general)	97	Pneumonia	26
Water supply	97	Carriers	26
Air	95	Sanitation	26
Ventilation	77	Wastes	26
Carbon dioxide	63	Garbage	25
Digestion	58	Measles	25
Exercise	53	Malaria	24
Typhoid fever	53	Smallpox	23
Milk	53	Communicable diseases	23
Health officers and administration	50	Toxins	23
Tobacco	48	Insect propagation of disease	23
Flies	47	Temperature	23
Quarantine	46	Heat in homes and work places	22
Housing and health	44	Vital statistics	22
Teeth	42	Filters	22
Circulation	42	Mosquitoes	20
Liver, gall bladder	37	Refuse	20
Eyes	36	Yellow fever	20
Diphtheria	36	Antitoxins	20
Arteries, blood pressure	35	Disinfectants	20
Sugar	34	Pasteurization	20
Ears	34	Wounds	20
Adulteration	31	Meat inspection	20
Immunity	30	Humidity	20

Whatever the source of our evidence, it appears that in the case of the problems or topics at the head of the list we are discovering matters to which serious attention should be given in the formulation of any health program. As we continue to gather other evidence from other sources, we shall with certainty discover all the many health problems which should be considered in any health-training program. The number of items found, however, is so great that we shall have to employ a different medium for the presentation of the complete list.

A CONTRIBUTION TO THE TECHNIQUE OF CONSTRUCTING "BEST-ANSWER" TESTS

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The problem here reported, the construction of a certain best-answer test, arose during the development of a larger problem, namely, an investigation into the nature and amount of civic information[1] possessed by pupils about to enter the junior high school. Before the larger problem could be solved, two minor questions had to be answered, one of material and one of method. (1) On what body of material should the pupils be questioned in order to determine the limits of their knowledge? (2) How should the examination be carried on? We are here concerned with the second problem, that of devising an examination technique, but a brief summary of the problem of material is necessary.

What are the facts or elements in the field of civics which pupils might be expected to know? On what body of material should they be questioned or asked to express themselves? By means which need not be detailed here, a list of basic terms or elemental facts used in discussing civic problems was compiled. The total list of 157 terms was divided roughly into three groups—political, economic, and social. Other investigators might use a somewhat different list and divide the terms differently, but that is immaterial. In so far as possible, elementary terms capable of easy definition were used. In some cases brief questions or discussions were necessary. The following list of sample terms will illustrate the nature of the material:

Mayor, duties of city council, ward, precinct, sheriff, county, taxes, election, candidate, jury, graft, non-partisan, subpoena, search warrant.

Consumer, retailer, charge account, profiteering, bank, stocks and bonds, monopoly, insurance, mortgage, boycott, open shop, speculator, exports.

Community organization, slums, suburbs, tenement, divorce, census, city zoning, propaganda, vocational education, Americanization, epidemic.

[1] The term "civic information" is defined as including such civic, economic, and social facts as are commonly connoted by the term "community civics" as it is used in educational discussions at the present time.

With this body of material determined, the second problem was attacked. How could these facts be presented to the children so that they could quickly indicate their knowledge of the terms, either by defining them or by showing familiarity with the accepted usage of the facts? An examination of all the information tests on the market indicated that some form of the best-answer test would serve the purpose.

Ordinarily, in constructing a reliable test, each item in it is presented to many thousands of children, and the distribution of the answers is tabulated. If the distribution of the pupils' answers is more or less evenly divided among the three or four answer-choices, or if the distribution proves erratic on several trials, the question is discarded. On the other hand, if a large percentage of the pupils select the right answer consistently, this is regarded as reliable evidence that the children possess the information called for.

It has been obvious, however, to many classroom teachers that pupils very often have been able to determine the right answer to a question from the facts supplied by the question itself and were not actually drawing upon their own previous knowledge. This in itself would not be serious unless occurring frequently in any one test. It has also been obvious that children often select answers neither on the basis of their own knowledge nor on the basis of the meager data supplied by the question itself, but because of factors entirely unrelated to the question. Often they hit on the right answer. Provided the reasons for the selection are fairly universal in their appeal, large majorities of different groups will select the same right answer when the pupils are actually quite ignorant of the facts. For instance, in this study, from 80 to 90 per cent of the pupils examined constantly and consistently selected the right answer to each of several questions although they were entirely ignorant of the topic discussed. In other words, in some cases statistical determination of the reliability of a test does not furnish evidence regarding its reliability as a test of the pupils' knowledge. It merely determines the fact that children will consistently select the same answer.

Furthermore, there is usually the element of guessing, and attempts are made to make allowance for it statistically. Classroom teachers are of the opinion that pupils do not guess except under

certain circumstances. If the content of the test is entirely beyond their ken, they will usually guess unless convinced beforehand that they should not do so. Otherwise, they proceed, as indicated, to select certain specific answers for definite reasons, which may or may not have anything to do with the facts involved. Much answering that looks like guessing is not guessing in the true sense. It is the conscious selection of an answer for certain reasons. Sometimes these reasons lead to the right answer and sometimes to a wrong one.

In the main, the statistical method of standardization is, of course, reliable. If the answer-choices are constructed in the first place with the greatest care, there is probably little danger of deceptive questions being included as reliable. However, a long test may easily exhaust the ingenuity of the best test-maker, thus allowing a number of poorly constructed questions to creep in. Furthermore, the wider the field of information covered, the greater will be the number of questions which the pupils may be able to answer without really possessing the facts involved.

Therefore, since a favorable opportunity presented itself in the construction of this test in civics, a new procedure for determining reliability was tried out. A best-answer inventory test was constructed, sample items of which will be presented, together with a discussion of the results. This test was given to two groups of sixth-grade children in the Chicago schools, 334 pupils in all. Of these, 172 were of American stock, attending schools in good residential districts. The remaining 162 were Polish and lived in a very poor slum district. The sharply contrasting groups were selected in order to find out whether the factors determining the pupils' answers differed seriously between groups or remained constant regardless of nationality and economic and social status.

Tabulation of the answers of these two groups of pupils showed that, in the main, the questions could be classified into three groups: (1) questions to which very large percentages of the pupils selected the right answers; (2) questions to which very large percentages of the pupils selected specific wrong answers; (3) questions which large percentages of the pupils refused to attempt because of the instructions with regard to guessing. Those who attempted the third group of questions usually selected the right answers or concentrated on specific wrong answers.

The next step was to interview a large number of the pupils who had taken the test. Eighty American pupils—47 per cent of the group—and 60 Polish pupils—37 per cent of the group—were interviewed. It might be objected that this was too small a sampling, but the results were so clear cut and decisive that the interviewing was not carried farther in this preliminary trial. Before the study was completed, a total of 3,076 pupils took the test, and 429 were interviewed. In all cases an equal number of boys and girls were selected at random from the classrooms involved.

A standardized procedure was worked out, and all interviews were conducted with the greatest care. Much interest had been engendered by the test itself and by the nature of the questions. The children were therefore on the alert and anxious to be selected for interviewing. It was possible to carry on the questioning as an easy conversation about the test. Clear-cut and thoroughly conclusive results were thus obtained.

The procedure was as follows: "You remember taking a test for me the other day? Today I am going to ask you some of the same questions, but this time I will just read each question to you, and you may tell me the answer in your own words." The questions were then read to the pupil, and he was urged to define, to illustrate, to tell anything he knew which might bear on the answer, to indicate in any way at his command his knowledge or ignorance of the facts. As he answered, his replies were checked against his written answers.

The pupil was then handed an unmarked copy of the test and asked to select the right answers for certain designated questions. These questions were of two kinds: (1) questions answered correctly in the written test but shown by the interview to be unknown to the pupil; that is, questions to which he could pick the right answers with the answer-choices before him but concerning which he was really ignorant; (2) questions to which certain wrong answers were consistently chosen by large percentages of all groups tested.

Each pupil was then questioned in detail as to why he had selected these answers. Practically every child gave clear and explicit explanations, showing in detail his mental processes in arriving at the answers. On the basis of these interviews the following facts were established: (1) In most of the cases where nearly all the children selected the right answer, the right information was

possessed by the pupils. This is, of course, what is to be expected, particularly if great care has been used in constructing the test. (2) In several cases, however, in which large percentages of the pupils consistently selected the right answer, the right information was not possessed by the children. The answers had been selected for certain definite reasons. (3) In several cases large percentages of the children consistently selected a certain wrong answer but were confident that they had arrived at the right answer. These answers also were selected for certain definite reasons.

What, then, are the processes by which pupils arrive at answers, right or wrong, when they are actually ignorant of the information called for? There are three:

1. *Elimination.*—If the pupil is ignorant of the facts called for, he will attempt to eliminate two of the answer-choices, selecting the remaining one as right even though quite ignorant of its meaning. This often leads him to the right answer or leads large percentages of the whole group to concentrate on a certain wrong answer. Since all the pupils were in the sixth grade and of the same average age, their respective backgrounds were largely alike. Answers that could be eliminated by one pupil for certain reasons could be eliminated by practically all the pupils for the same reasons. This gave a startling consistency to scores which were entirely unreliable.

2. *Selection of answer containing familiar word or phrase.*—If a pupil can eliminate only one of the choices, or none of them, he then selects any answer which has in it a familiar word or phrase. The results are the same as in the case of elimination. Sometimes a right answer is consistently selected; sometimes the pupils concentrate on a certain wrong answer.

3. *Selection of answer having pleasant affective tone.*—When a pupil cannot eliminate two answers and cannot find a familiar word or phrase to help him to decide, he will select any answer which has a pleasant affective tone. Any answer which has a cheerful, pleasing, or kindly implication is chosen. Pupils said of such answers, "That would be a nice thing to do." "I would like to have it happen that way." "That is the kind thing to do." "That sounds like an answer the teacher would want."

Before illustrating these processes, we may briefly dispose of the

element of guessing. It seems that if none of these three procedures could be used, the pupil would then guess or pick an answer by position, by "lucky number," or by some other arbitrary device. Such procedure is, of course, perfectly natural and is encouraged by many tests which urge guessing if the pupil is in doubt. Many of the children taking this test had taken other tests which urge guessing; when directions were given to avoid such procedure, they asked questions to make sure that they understood. An introduction to this test was carefully worked out and refined through successive trials so that guessing was actually reduced to almost zero. In the final trials, interviews showed that pure guessing or selecting answers by position was entirely negligible.

Selecting answers by the process of elimination may be illustrated by the following cases:

What is a middleman?

A man who handles goods between the producer and the consumer.
A man owning a middle-sized store, neither large nor small.
A man having the best location in the middle of the block.

From 45 to 75 per cent of the children, varying very slightly with group and sex, selected the right answer, but the interviews showed that but 30 per cent of the pupils really knew the meaning of the term. The others arrived at the right answer by discarding the other two answers as not being sensible.

What is a subpoena?

An order to appear in court at a certain time.
An order freeing a man from jail.
An order for a man's arrest.

About two-thirds of the pupils refused to attempt this question because of the directions with regard to guessing; of the remaining one-third, nearly all selected the right answer. The interviews showed that this percentage, about 25 per cent of the whole group, was only half reliable. A typical answer was: "You don't have to have an order for a man's arrest; the policeman just arrests him. You can't let a man out of jail that way. The other answer must be the right one." Incidentally, the children displayed their ignorance of the terms "habeas corpus" and "warrant." Most of them admitted

that they had never heard of a subpoena, even though selecting the right answer.

What is vocational education?

It prepares boys and girls to go on to college.
It prepares boys and girls to go into some trade or business.
It is for very small children in first or second grade.

About one-half of the pupils refused to attempt this question, but, of those trying, practically all selected the right answer. The interviews showed that only 10 per cent, instead of nearly 40 per cent, really knew the answer. A typical response was: "The first is college education, and the last one means elementary education. It must be the second one." Many children said that the right answer was not there at all, since "vocational education is something to do with musical education" (vocal training). This statement was used to advantage in reconstructing the test.

Selecting answers because of a familiar word or phrase may be illustrated as follows:

What is the platform of a political party?

The stand from which the speakers make their speeches.
The list of men who are put up for office by the party.
A statement of what the party believes in.

From 50 to 65 per cent of all the pupils selected the first answer as the right one, being familiar with street speakers, band-stands, reviewing-stands, etc. Practically none of them selected the right answer.

What is a consumer?

A person who sells groceries, clothing, or supplies of any kind.
A person who uses any goods of any kind.
A person who wastes things—food, coal, supplies—of any kind.

From 55 to 65 per cent of the pupils selected the first answer. The interviews revealed the fact that the children were familiar with the "Consumers" chain stores all over Chicago and also with the wagons of the Consumers Ice and Coal Company and concluded that "consumer" has to do with selling things.

In attempting to define the term "standard of living" nearly 40 per cent of the pupils answered correctly when, in fact, not a single child knew the real meaning of the term. They had all been attracted

by the expression "food, clothing, and shelter" contained in the right answer, which is a phrase often repeated in geography classes.

Selecting answers because of their pleasant implications may be illustrated as follows:

What is a profit-sharing plan?
The workers get a share of the profits in addition to wages.
Profits are given only to those owning the company.
Where all profits are put in the bank until needed.

From 45 to 75 per cent of the pupils selected the right answer, but the interviews showed that but one boy knew the facts in the case, and he had just read an article in a magazine. A few arrived at the right answer by elimination, but the majority selected the right answer because they thought sharing the profits would be a nice or kind thing to do.

Who are the men in the president's cabinet?
The heads of the chief government departments.
The secret-service men who guard him.
The most important senators.

From 60 to 75 per cent of the pupils chose the third answer. Their reason was that the president surely would be surrounded only by the "most important" people. The interviews showed further that the very small percentage of pupils, about 20, who selected the right answer actually knew the facts. This was important as guidance in reconstructing the test. If a certain wrong answer can attract the guessers consistently, the small percentages selecting the right answer are all the more reliable.

On the basis of the information obtained from the interviews with the pupils, the questions were reconstructed and tried out on several groups of children and on groups exactly similar to those used in the first trial. Nineteen items were retested. Two did not respond to treatment; five gave partly satisfactory results; while twelve gave excellent corroboration of the principles used in reconstructing the answer-choices. Lures were inserted to lead the guessers astray. All answers were scrutinized carefully for possible bases of elimination and constructed accordingly. Every effort was made to keep all answer-choices free from obviously familiar terms, phrases, or catchwords. Finally, all attractive implications were removed from the correct answer-choices.

Space does not permit an extended discussion of these reconstructions, but a few samples may be cited. In the case of "subpoena" about 25 per cent of the pupils selected the right answer in the first trial, but the interviews showed that this percentage was only about one-half reliable. When the question was reconstructed, only 13 per cent of the pupils answered correctly, which more nearly represents the true facts. In the case of "vocational education" the percentage was reduced from about 40 to 10, which was almost exactly in keeping with the results of the interviews. In the case of "middleman" the percentage was reduced from 45–75 to about 30. Other items showed similar results.

What, then, are the principles which may be used in constructing "best-answer" tests in order to make them more reliable?

1. In the case of all items the list of answer-choices must be most carefully constructed.

a) The right answer must not deal with ordinary everyday information unless the two wrong answers are similarly constructed. This tends to prevent elimination.

b) It is better to have the three answer-choices relate to parts of the same concept or to closely related concepts rather than to distinctly different concepts. This tends to prevent one answer being chosen merely because it is more familiar.

c) The right answer must be carefully worded so that it will not be more attractive than either of the two wrong answers because of pleasing content.

d) One of the wrong answers may be made attractive and alluring by the insertion of some of the elements which lead "guessers" to select answers. This is safe, as it was shown conclusively that no pupil who really knew the right answer was ever led astray.

2. In the case of those items in which it is reasonable to suppose that the pupils will more than likely be ignorant of the facts, two of the foregoing points should be re-emphasized.

a) All three answer-choices must be equally unknown and difficult in order to prevent elimination.

b) One of the wrong answers should without fail be made attractive and alluring.

A YEAR WITH THE STEREOPTICON

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It all began with the electric lights. The Mothers' Club, alert to the needs of the children, said, "We must have lights in the Carbery School." Since this club works hard and gets results, within a remarkably short time there were lights in the school. Then, the Mothers' Club, not satisfied with this achievement, looked about to see what else could be done to increase the efficiency of the school. After much deliberation, they presented it with a stereopticon and a case for slides, together with a generous appropriation for the purchase of new slides from time to time.

Needless to say, both teachers and children were overjoyed. The Carbery School is not one of the new buildings with assembly hall, bright classrooms, and ample playgrounds. On the contrary, it is old and hampered by lack of space, both inside and out. The installation of electric lights was an achievement, but a stereopticon was the last word. Children attending newer schools who had hitherto looked down upon Carbery discovered that it was not such a bad place after all, and the Carbery children simply swelled with pride.

The stereopticon arrived in December, 1923, a week before Christmas, and all that week it stood in state in the lower hall, bearing a huge red bow and a card inscribed, "Merry Christmas from the Mothers' Club." Smiling children marched past it, eagerly awaiting the time when they should have pictures in their own rooms.

The first slides were Christmas carols. We practiced them every day, and on the last day before the holidays the hall and stairways were crowded. A large tree, with strings of colored lights, filled one corner. When all the lights except those on the tree were turned off and one by one the carols were thrown on the screen, the children sang with all their hearts and lungs. What mattered it if they nearly "raised the roof"? We knew it was only an expression of thankfulness for the new gift.

As winter passed, the stereopticon was more and more in demand. The seventh-grade teacher was quick to see its possibilities in teaching geography. As each country was studied, she procured a set of slides and a lecture. Italy, France, Norway, and the British Isles soon came to mean more than colored spots on the map. The children saw the dress, customs, and activities of the people; the principal industries; and the important cities, mountains, and rivers.

In some cases geography, history, and literature were correlated. For example, Scotland was viewed with reference to the poems of Burns and Scott and the wars of Bruce and the Scottish chiefs. A personal touch was given when several teachers who had been abroad related their experiences while visiting the places shown.

The children began bringing in pictures and articles from newspapers and magazines, showing that their interest held over beyond school hours. When a lecture was prepared, each child was held responsible for information about one or two pictures and was expected to give the results of his research in a short talk describing the slides.

When a class had studied a country and was thoroughly familiar with it, another class was invited to take a sight-seeing trip, and each child in the first class had a chance to serve as a guide in describing the places visited. In this way, all received training in the art of addressing an audience, an experience which will be invaluable in later life.

The eighth grade, not to be outdone by the seventh grade, decided to specialize in literature. The class was struggling at the time with Scott's *Lady of the Lake*. Anyone who has taught that poem, with its drawn-out descriptions and unfamiliar language, to a partly foreign group that is deficient in modern English will appreciate the help given by the slides dealing with the poem. They emphasized the dramatic moments and offered the story as a more compact whole, besides giving historically correct pictures of the dress of the people and the wild scenery of the Scottish Highlands.

Here, as in the seventh grade, each child was assigned a picture, which he described either in his own words or by reciting part of the poem. The story connecting the pictures was told briefly by one or two children, and several parts were dramatized. A phonograph,

also the gift of the Mothers' Club, supplied several songs, such as Gounod's "Ave Maria," the "Coronach," and the stirring "Hail to the Chief." The children worked hard, and when the seventh grade was invited to hear *The Lady of the Lake*, the interest was intense.

Evangeline was studied in the same way, and the children saw and felt the beauty and peace of Acadia. The pupils in other schools who were studying the same stories were invited, and all were enthusiastic and a little bit envious. They were so interested and so eager to be invited again that discipline was no problem, although the room was crowded to its capacity.

The eighth-grade teacher is working out a lecture in civics which promises well. She had slides made of the Republican and Democratic national conventions and of the President at the opening of Congress. She also expects to make use of election and inauguration pictures in order to show how our government is carried on.

These are a few examples of the use the older children have made of the stereopticon. The fourth grade has studied the Potomac River from its source to its mouth. Indeed, a whole lesson in physical geography has been given on one slide, showing mountain, valley, waterway, etc. The planting, cultivating, and harvesting of cotton, wheat, and other important crops were also shown.

A number of lectures on general subjects have been enjoyed by the whole school, usually with two grades in a room. There is a social value in the interchange of hospitality which is easily recognized, especially in the lower grades, where the interest and concentration are not so great. It is a sorry day for the pupil who is reprimanded for impoliteness, whether he be host or guest, and the prospect of being deprived of the next lecture usually has a sobering effect.

In the spring we saw the beauties of the national parks and learned something about the duties of a forest ranger and the importance of forest conservation. We reveled in the wild flowers and learned which ones might be picked and which ones should be safeguarded. We waged our own campaign for the preservation of dogwood by showing two dogwood slides every time the lantern was used. The lesson made an impression, as a month later, when pictures of flowers for home and school gardens were shown, a kinder-

garten child asked, "When is it going to say, 'Don't pick the flowers'?" The stereopticon has been of great assistance in the teaching of nature-study, since the school is located in the heart of the city and material for that purpose is hard to secure.

In the autumn the kindergarten visited the farm with the stereopticon and saw the farmer gathering his crops. Thanksgiving brought the Mayflower and the landing of the Pilgrims, while Christmas heard the carols ring out again, and the older children told the story of Dickens' *Christmas Carol.*

We are fortunate in Washington, for we can procure lectures and sets of slides prepared in the various departments of the federal government. From time to time we discover other sources where slides can be rented at a moderate cost. This has enabled us to take our time in adding to our library, choosing only the best for the permanent collection. The slides are catalogued, and a list is kept of available lectures and supply bureaus. Any teacher can tell at a glance whether the material she wants is on hand and, if not, where it can be obtained.

In one year the stereopticon has made a place for itself second to nothing else in the life of our school. In awakening interest, in imparting instruction, and in giving pleasure, as well as in developing initiative, it has gone far beyond expectations. Furthermore, we have only made a beginning, for we are constantly finding new uses for our stereopticon and feel that its possibilities are unlimited.

THE SUPPLEMENTARY-DEVICE VERSUS THE INTRINSIC METHOD OF TEACHING READING[1]

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It is altogether fitting that a splendid yearbook on reading, a subject of prime educational and social import, should appear at the end of the first quarter of a century of scientific work on the subject. It is equally fitting that such a record of achievements should appear in the files of the National Society for the Study of Education and that it should be the product not of a single writer but of a group of leaders in the several phases of the subject. I wish it were my privilege to dwell at length on the many virtues of this book. It is my duty, however, to present briefly some significant issues and needed types of investigation.

So numerous are the issues and needs of research revealed by the yearbook that it will be necessary to limit the discussion to one narrow phase of instruction and to one scholastic level. The choice of the phase of reading and the school level is based on three convictions: first, the conviction that this phase and level are the most important, the most fundamental; second, the conviction that this phase and level have been the most conspicuously neglected by experimental workers; and, third, as a consequence of this neglect, the conviction that the treatment of this phase and level in the yearbook is the least adequate. The phase of reading to which I refer is the methodology or technique of teaching and learning; the level is the initial stage, especially the first half-year.

A number of considerations lead to the belief that the first year of instruction in reading, like the first stage in other forms of learning, is of prime importance. The beginning period is of special significance since it is herein that methods of perception of words,

[1] This article is substantially a paper read at the Cincinnati meeting of the National Society for the Study of Education devoted to a discussion of *The Report of the National Committee on Reading*, published as Part I of the Twenty-fourth Yearbook of the National Society for the Study of Education.

motor habits of eye and tongue, and other essential techniques are initiated, either properly or improperly; it is herein that mental and emotional attitudes, either favorable or unfavorable, are established, often to be perpetuated.

Let me illustrate in concrete form some evidence of the importance of the initial stage. As suggested last year by the work of Lois Meek,[1] the very first lesson may be of crucial import. In a first lesson learned by nearly all the children in a group, ages three and one-half to six, a few, for reasons not always obvious, failed. Failure on the first attempt was usually followed by other failures, which invariably killed the initial interest in the "game." After several such days, the child was "busy" when called, or hid behind the piano, or blurted, "I hate that old game." After such intense hatred had developed, a definite form of tuition was adopted. Soon the child was taught a technique and, with it, achieved success. Out of black hatred grew, slowly or abruptly, a new and happy interest. Three-year-old children liked learning to read words so long as they achieved marked success.

What would have been the result if less insight and skill had been shown and failure had continued a little longer? Possibly there would have been "special disabilities" in reading even among children of superior intellect, disabilities of the type altogether too frequent at the present time, disabilities that might seriously jeopardize the scholastic career of bright pupils, disabilities which would require great skill to remedy if they were allowed to continue. In several such cases children were saved from serious difficulties by skilful tuition on the part of the teacher.

In some other studies by Dr. Meek and others,[2] in which the purpose was to ascertain how the beginner reacts to words and how he perceives them, it was found that the type of perception and correlated eye-movements depend to a large extent on the way the lesson is mechanically presented. Learning the word "cat" as part of a sentence resulted in one type; learning the same word with un-

[1] Lois Meek, *A Study of Learning and Retention in Young Children.* Teachers College Contributions to Education, No. 164. New York: Teachers College, Columbia University, 1925.

[2] Arthur I. Gates and Eloise Boeker, "A Study of Initial Stages in Reading by Pre-School Children," *Teachers College Record,* XXIV (November, 1923), 469–88.

related words of varied lengths and configurations, in another type; learning it along with other words of the same length and similar configuration, in another type. Since much depends on the total learning situation, it is probable that once we know the types of perceptive habit that are best, we may do much to secure them, not only through tuition and guidance by the teacher but also, and perhaps largely, by means of proper mechanical arrangement of materials.

Such observations as these are largely responsible for my two main theses: first, that the initial stages are of paramount importance—truly, well begun is half done; second, that proper organization of the initial tasks, together with instruction and guidance of a most definite sort, is especially necessary during the first months.

We shall be able to consider only a few samples of the many phases of technique concerned with the initial stages of reading. Certain issues appear clearly when current practices, the yearbook recommendations, and the results of experimentation are compared.

Two extreme points of view concerning the methods of introducing pupils to reading appear in a survey of twenty-one first-year courses[1] which, according to the publishers, are now widely used. The one method begins with the teaching of small, more or less isolated units—with letters in one case, with words in ten cases, and with short phrases and single words in two cases. In all these thirteen systems, a great deal of word drill—phonetic analysis, sight reading, and oral pronunciation—is found. Reading of paragraphs is approached more or less gradually after various amounts of word mastery.

At the other extreme is the story or paragraph method, in which the learner attacks a complex whole, learning as best he can and gradually achieving familiarity with word characteristics. Four systems follow this method; four other systems are compromises.

We turn now to the yearbook for a choice. The authors vigorously oppose beginning with letters and extensive word drill; they point out the dangers of overemphasis on analytic devices which often

[1] Arthur I. Gates, assisted by Esther Hemke and Dorothy Van Alstyne, "Problems in Beginning Reading Suggested by an Analysis of Twenty-one Courses," *Teachers College Record*, XXVI (March, 1925), 572–91.

results in mere word-calling. Miss Jenkins and Mr. Gray have both dealt skilfully and, I believe, properly with this danger.

The yearbook recommends "vigorous emphasis from the beginning on reading as a thought-getting process and the subordination of the mechanics of reading to thoughtful interpretation."

How is this "thought-getting process" to be achieved? In practice, some contend that it is to be obtained best by simply reading, or attempting to read, from the first, stories and other verbal units. Some favor a direct natural method; they assume that the pupil will find his own best way.

The inadequacies of this practice—this disregard of instruction and guidance in the formation of reading habits—are recognized by the authors of the yearbook. They are aware of the fact that the "natural" unguided efforts of young children result too often in extreme mechanical difficulties, in inappropriate habits that may seriously hamper or completely inhibit the acquisition of facile, accurate, and intelligent reading on higher levels.

The extreme natural method, like the other extreme method, is rejected by the yearbook. It proposes reading for thought-getting from the first, however—the reading of signs, posters, announcements, stories, and other connected material. The mechanical skills are not to be neglected; the inappropriate habits and difficulties which Miss Zirbes has so well described and classified in the section on diagnostic and remedial treatment are to be avoided. How? By resort to a number of supplementary devices.

This is a prevalent American method. Let the learner attack meaningful material as best he may but utilize supplementary devices to establish good reading habits and skills. Among the twenty-one first-year systems analyzed, such devices are found in amazing number and variety; they include partial or complete memorization of a passage to permit fluent progress, sentence- and word-building games, recognition and matching activities, writing words, spelling words, flash cards, ear-training exercises, phonetics, and so on. By far the most commonly used supplementary devices are phonetics and flash-card exercises. They are the very corner stones of American methodology.

The yearbook has adopted the general theory that the child

should begin at once to read and that guidance in skill is to be secured through supplementary devices. What the authors have done is greatly to refine and improve the particular management of both phases of the method.

It is in connection with general theory that research is especially needed. The investigations should take two directions. First, the specific devices and techniques so carefully worked out by the committee should be submitted to experimental test. Second, the underlying general theory should be subjected to scientific verification.

I believe that the members of the committee have rendered a great service in working out a system of supplementary devices—phonetics, flash cards, etc.—which is appreciably superior to any other now in existence. Since the method of direct reading plus supplementary work is now available in a refined form, it will be possible, through careful experimental work to appraise the specific merits and deficiencies which this policy may possess. The superior techniques made available in definite form by the yearbook should be the means of many experimental studies.

Now that the conventional system has been so well refined, it is time to inquire whether research should be limited to the validation of its subordinate techniques. I believe not. On the contrary, I believe that it is now time to initiate inquiry concerning the fundamental validity of the theory which embraces the device of direct reading for thought-getting with supplementary—even if closely related—devices for good reading habit development.

The investigator who is looking toward the future may find grounds for questioning the fundamental validity of the present system. He may find at least three points on which to base his questions: (1) Where used under favorable school conditions in the past, the theory of supplementary training has not, on the whole, accomplished all that is desirable. (2) The theory of supplementary technique, particularly the use of phonetics or flash cards, has never been substantiated satisfactorily by scientific investigations. (3) In the light of established principles of psychology, the method is not secure from theoretical attack.

These three considerations will be given brief treatment. First, despite a wealth of supplementary devices and intelligent teachers,

the number of pupils strikingly deficient in fundamental reading habits is pathetically large—not so large as where the "natural method" is used, but still large. They are found in every school, public or private, with which I have ever had any acquaintance. They occur among children of superior intellectual endowments. They must occur elsewhere; otherwise Mr. Gray, Miss Zirbes, and others would not have found it advisable to devote so much time to diagnostic and remedial work.

Second, it is a striking fact that the two most widely used supplementary devices, phonetics and flash cards, have never been shown, in strictly experimental work, to contribute appreciably to real reading in the initial stages. Indeed, the only experimental studies of phonetics in the literature of my acquaintance indicate unfavorable, rather than favorable, results. It must be said, however, that these studies are inconclusive.

There is some evidence that the use of flash cards increases the span of apprehension so long as flash cards are used, but it has not been satisfactorily demonstrated that such training transfers to actual reading in the case of beginners. Most of the work with flash cards has been conducted with older children, especially in cases of disability. Even here the specific contributions of this device have not been clearly shown. The reason is that other devices, materials, and incentives have been applied simultaneously. It has been like treating a fever patient with rest, hot baths, specialized diet, and several drugs at once. The specific effects of each remedy cannot be identified.

Finally, there are reasons for questioning the fundamental soundness of the reading and supplementary-exercise method. The objection to the method is that the training for reading efficiencies is supplementary and not intrinsic. The use of flash cards, phonetics, and other such devices entails this significant risk: The habits developed by their use are imbedded in situations more or less distinct from regular reading. We know that dependence on transfer is risky even in the case of older, more experienced, and intellectually more mature pupils. In all likelihood, such dependence will be even more risky among beginners. I have gathered some data which suggest, but do not conclusively demonstrate, that in the case of young chil-

dren the transfer from phonetic and flash-card drills is surprisingly meager. The implication is that among beginners dependence on supplementary non-intrinsic training is inadvisable.

The situation, then, is essentially as follows: It is clear that it is unsafe to leave many children to their own natural methods. Some form of training in the technique of reading is absolutely necessary. The method of supplementary training leaves much to be desired; at least, the fundamental validity of devices now in use may fairly be questioned. If the supplementary training is imperfect, the advisable course of action is not to discard it and return to sheer trial-and-error methods—that is, natural methods—but to seek for better techniques. All the evidence indicates not that specific attention to reading habits is unnecessary but that it is greatly needed. What are necessary, in fact, are better techniques than are now available. Experimentation, however, should be directed not solely to refinements of the present type of method but to a search for other types of teaching which, theoretically, seem to possess certain superior characteristics.

Although predictions are obviously risky, I shall venture to suggest certain characteristics of a method at least worthy of consideration by investigators.

The first characteristic is the intrinsicality of the several types of exercises designed to produce effective reading habits and skills. The pupil will get practice in appropriate perception of words, in achieving familiarity with word-parts for the purpose of developing power to recognize new and difficult words, in acquiring speed and flexibility in reading, etc., not in special supplementary work but in the process of actual reading for thought-getting. The results will be achieved, in part, by a careful arrangement of the material read and the comprehension exercises essayed. The material will be so arranged that while the pupil is reading to get the main idea, or to find the answer to a question, or to ascertain the emotional tone of the material, proper training in perception, eye-motor control, fluidity of progression, etc., will be simultaneously—that is, intrinsically —provided. To some extent, the pupil will be dependent on guidance and tuition suitable to his particular needs, since it is unlikely that all can be accomplished by mechanical arrangement of the ma-

terial alone. It will be necessary, and not impossible, for the teacher to acquire such knowledge as is needed to enable her to provide the necessary guidance with skill.

The intrinsic method will be designed to secure several desired reading reactions at one and the same time. Simultaneously, word perception is to be sharpened, rate increased, regular eye-movements encouraged, specified types of comprehension demanded and appraised (for example, by means of self-corrective devices), and appreciations stimulated. The aim of the newer methods should be a consolidation of the good features of present practices now chiefly utilized in isolated form. Devices, such as phonetics and flash cards, that are essentially separate drills, which may at best be closely associated with real reading but not absorbed in it, are likely to be supplanted by new intrinsic methods that will serve similar purposes as well or better. If this is possible—and none can claim that it is impossible without claiming omnipotence—the advance in method will be great. Not only will an intrinsic method be more certain to function, since it depends not on transfer[1] but on direct practice in real reading, but it will have other desirable characteristics. It should be more economical of time, since no periods need be set aside for phonetics and other drill, which can have scarcely any educative value except in so far as they produce the specific habits which, it is hoped, will transfer to real reading. The intrinsic methods should be more vital and interesting, since they may function during the reading of useful and interesting material, informative, narrative, or other.

To secure further assistance in the development of necessary reading techniques, studies of the facilitating and inhibiting influences of other subjects should be undertaken. For example, it is now probable, since there is usually *some* degree of transfer, that some methods of learning to spell tend to inhibit, while others tend to facilitate, effective ways of perceiving words. It is wholly conceivable that a method of study in spelling which greatly facilitates read-

[1] Even where transfer is shown by investigations in general, it is almost invariably not found in many individual instances. Thus Rugg found no transfer in one-third of his geometry-trained subjects. The same sort of result is to be expected from the use of any kind of supplementary device. (See H. O. Rugg, *The Experimental Determination of Mental Discipline in School Studies*. Baltimore: Warwick & York, Inc., 1916.)

ing perception may also be optimum in spelling. Some evidence in this direction is already at hand, indicating that a favorable type of "seeing" words in reading contributes to success in spelling.[1]

Writing should be studied to the end that mutual facilitation may be similarly secured. Children may, for example, be encouraged early to write as units those portions of words which form the most significant divisions for reading perception and spelling recall. These units may correspond to syllables or to what are now called phonograms or to some other divisions, possibly visual rather than auditory. The possibility of securing some such type of harmony and uniformity of habit formation in these three subjects is certainly worthy of investigation, and the prospects for success from such research are, I believe, by no means dim.

In connection with the problem of securing mutual facilitation of reading and writing, the use of print-like or manuscript writing deserves careful study. In the initial stages, the print-like writing appears to be more easily acquired than ordinary script. While this may be due mainly to the greater ease of the muscular habits required in the print-writing, it may be due in part to the similarity of the written product and printed words. Seeing the words in print helps to reproduce the words in writing, and, conversely, writing words like those in print facilitates the recognition of words in reading. Either type of facilitation can scarcely be so great when script is used. It remains to be demonstrated that the print-like writing can be developed in sufficient speed for upper-grade or adult use, but, even if it cannot, it is not impossible that it is preferable for the first two or three years, after which script writing may be introduced. In sum, the print-like writing merits investigation, not only as a possible competing motor function, but also because of the possibility it offers of facilitating spelling and reading and of being facilitated by them.

A very interesting and important related issue raised by the yearbook is concerned with readiness for reading. Mr. Gray writes, "Many pupils [in Grade I] need training similar to that outlined for

[1] See Arthur I. Gates, *The Psychology of Reading and Spelling with Special Reference to Disability*. Teachers College Contributions to Education, No. 129. New York: Teachers College, Columbia University, 1922.

kindergarten children which will extend their experience, develop habits of good thinking, improve their use of oral English, increase their vocabularies, ... and stimulate keen interest in reading." In another section, Miss Zirbes presents a series of ingenious tests for readiness to read. These recommendations and devices seem most commendable for use under present conditions. Nevertheless they raise a significant issue.

The question is whether reading is intrinsically so difficult a function that many normal children are unable to master it until after the sixth year. Theoretically the reasons for this are not clear. Children learn to comprehend spoken language within limits before their second year; I see no real reason why, with the world so arranged as to make visual comprehension of words equally significant and with equal patience and more skill in tuition, children should not learn to read words and sentences equally early. Suppose that a child were reared by a dumb guardian who, instead of saying, "This is a bottle." "This, a spoon." "This, a table, chair, milk, etc." "Now I am walking, writing, opening the window, etc." should display a printed word, phrase, or sentence to indicate such objects, acts, events, and conditions and leave upon objects their printed names. The child would, I believe, learn to understand these printed words exactly as he now learns to comprehend oral words. Theoretically, there is no reason to believe that it is more difficult to associate things and events with visual symbols than with auditory signs. Indeed, some evidence is being gathered which indicates that very young children can, without marked difficulty, learn to comprehend printed words.

Do not understand me to suggest that the world should be reorganized in the interest of reading nor that children should be taught to read at three years of age or even five or six. I am merely questioning the validity of the implication that learning to read is fundamentally and necessarily difficult and late in appearing and whether many first-grade children are intrinsically unable to learn to read. Is it not possible that the fact that they often do not succeed in the first year of school is itself a suggestion that our methods of teaching afford too little real assistance, too little exact guidance? Perhaps the difficulty is that the child is bewildered by the complexity of

tasks presented when reading for thought-getting is emphasized from the first, with little real direction, and that too little vital help is secured through transfer from the supplementary practice in phonetics and the like.

Another problem is whether the tests for readiness suggested by the yearbook, based as they are on functions outside of reading—oral vocabulary, information, familiarity with shop signs, etc.—are the optimum tests for reading aptitude. The child's ability to learn to understand oral language is intrinsic, a direct appraisement of his ability to make progress. It is quite probable that the best evidence of ability to learn to read can be obtained by means of a test in such learning conducted under standardized, and therefore comparable, conditions. This point is important, inasmuch as the yearbook policy would result in delaying the teaching of reading to children of inferior educational background, meager information, and limited linguistic experience. It is entirely possible that these are the very children who most need to learn to read. It may be that much linguistic experience and information may be secured more rapidly and easily through reading than in other ways.

These, at least, are problems for research. I have hopes that some of my students will complete certain projected studies of learning to read by the congenitally deaf, which should shed light on some of these issues. Congenitally deaf children under eight years of age usually present a most pitiful meagerness of linguistic abilities and of much information which normal children acquire through speech. Some scarcely know that a verbal language exists. They should afford a test of the difficulties and values in teaching reading to educationally and linguistically handicapped children. Incidentally, study of the deaf should throw light on the values of phonetic training, since they cannot, of course, utilize this device.

Once more, and for new reasons, we return to the need of study of the technique of teaching the beginner. It is here that we are weak; it is here that our difficulties begin. In truth, we know more about diagnosing a troublesome case in Grade III than we do about starting a child aright in Grade I. The explanation is clear: all sorts of inappropriate and inhibiting habits having been allowed to develop and to become fixed, the demand for analysis and cure becomes imperative.

The real solution is in prevention rather than in cure, in a thorough understanding and utilization of more fruitful methods of teaching and learning in the first school year. The outstanding need in reading is a thorough survey of the whole field of primary methods by experimental technique. There is need for careful appraisement of the method of direct reading plus supplementary training which the yearbook authors have brought near a point of perfection. Now that this theory has been presented in such admirably practical form, there is need of testing its fundamental validity. There is need also for research directed toward the construction and appraisement of methods of reading based on another theory, the theory that the much needed practice in fundamental reading skills should be not supplementary but intrinsic. This methodology will require new types of practice devices which will be woven into the fabric of real reading, not merely allied with it. It will be furthered, too, by closer affiliation of reading with other subjects, especially spelling and writing, to the end that each may facilitate, more fully than now, the mastery of the others.

This paper has dealt with the need of research. Its purpose has been to suggest possible lines of investigation for the future. What of present practice? From what sources shall we seek improvements in teaching? To these questions the answer should be made emphatically: Part I of the Twenty-fourth Yearbook of the National Society for the Study of Education is undoubtedly the most comprehensive, unbiased, authoritative, and helpful manual on the subject of reading now in print. It should and will be the means of improving instruction in reading throughout the country.

Educational Writings

REVIEWS AND BOOK NOTES

A critical survey of teacher-training in England and Wales.—The last twenty-five years have witnessed a noteworthy increase of interest in public education in England. Signs of it are found on every hand, such as constructive legislation; discussions in the press, on the platform, and in the House of Commons; and notable increases in the demand for admission to secondary schools. One of the most striking evidences of keen interest in the problems of education is the report[1] by Lance Jones of Balliol College, Oxford, of a survey of teacher-training in England and Wales. The survey was made under the direction of the Garton Foundation, which generously contributed its staff and resources to the investigation for two years, from 1921 to 1923. The findings, which are very illuminating, were published for the purpose of promoting intelligent discussion of the various issues that are presented.

The primary purpose of the survey, as stated in the Introduction, was to make a "critical examination of the existing arrangements for the education and training of teachers in England and Wales." The report begins with a clear statement of the historical development of teacher-training in these countries and a detailed description of the present system. The major problems considered in the report relate to the preliminary education of teachers, the professional training of elementary- and secondary-school teachers, the training of teachers of younger children and of special classes, the training of teachers in service, the position of unqualified teachers in both elementary and secondary schools, vital issues with regard to the financing of teacher-training, and the present and probable future supply of qualified teachers. Numerous comparisons are made between teacher-training in England and Wales and teacher-training in Scotland, France, and the United States.

The report includes both a critical exposition of existing conditions and a series of constructive recommendations. The Appendix contains about seventy-five pages of source materials, such as statutory provisions, statistical tables, and excerpts from documents and reports. These and other evidences indicate that the survey staff endeavored to make an exhaustive, scientific study of the problems investigated.

[1] Lance G. E. Jones, *The Training of Teachers in England and Wales.* New York: Oxford University Press, American Branch, 1924. Pp. x+486. $3.50.

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The recommendations are summarized in terms of a reformed system of teacher-training. The ideal set up toward which legislation should be directed is a complete secondary and university education followed by professional training. It is recommended for the present, however, that prospective elementary teachers should receive two years of professional training after completing a secondary-school course, that prospective teachers of special subjects should take a two- or three-year course in special training colleges, and that prospective secondary teachers should take a one-year post-graduate course on the completion of a three-year degree course in a university. The fact is emphasized repeatedly in the report that preparatory or academic education should be completed before professional training begins.

Contrary to earlier practice in England, the recommendation is made that the cost of general education for prospective teachers should be met in the same way as the cost of general education for those preparing to enter other lines of work. The expense of professional training, however, should be "borne by Central and Local Authorities in agreed proportions, the student contributing a nominal sum." Very definite suggestions are made with regard to examinations on entrance to teacher-training institutions, a period of probation on the completion of professional training before certification, and required professional study for a period of time each year. In many respects, these recommendations are opposed to practices in this country. The report serves, therefore, as a most excellent source of information which can be used to distinct advantage in this country in efforts to reorganize or improve our system of teacher-training.

WILLIAM S. GRAY

The cost of teacher-training.—The great emphasis now being placed on the training of teachers directs attention to the manner in which teacher-training institutions are financially supported. The nation-wide movement to convert normal schools into teachers' colleges gives significance to the question as to the costs incident to teacher-training in the modern college. Furthermore, the insistent demand for economy makes it imperative that the financial factors be carefully scrutinized and evaluated. A recent volume[1] deals with these problems and, on the basis of the findings, makes certain specific recommendations.

The book is concerned with four significant aspects of the problem, namely, "The Historical Development of the State Teachers College," "Unit Costs [per student]," "The Relation between Size of Institution and Per Student Costs," and "Budgetary and Appropriation Procedure." The closing chapter of the book presents a summary and general recommendations.

The historical account seeks only to establish the fact that the fundamental teacher-training function of state teachers' colleges has been recognized from the outset; that these institutions have been established through legislative

[1] Frederic Rutherford Hamilton, *Fiscal Support of State Teachers Colleges*. Teachers College Contributions to Education, No. 165. New York: Teachers College, Columbia University, 1924. Pp. viii+52.

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enactment; and that their support has been, for the most part, dependent on local (state) funds, since the federal government has contributed but little to their promotion. In these facts are found the bases of the specific problems attacked.

The data are compiled from the records of twenty-five state teachers' colleges with a fairly wide geographic distribution and varying in size from the small Massachusetts type to the large institution of Iowa.

Annual costs per student for a ten-year period, 1913-23, are found to be typified by a median of $211.36, with a range from $81.80 to $761.00. The highest costs are found in the year 1918–19, when student enrolment was reduced to a low level. As compared with similar costs in universities and agricultural colleges, these costs are low. During the same period, in certain of the latter institutions with which comparisons were made, there is found a median cost per student of $412.50, with a range from $158.72 to $1,458.00. In both types of institution the highest costs are found where there are small student bodies. Approximately 58.5 per cent of the total expenditures have been devoted to instruction and 7 per cent to administration. The author suggests that the former percentage should be raised to 65 and the latter percentage to 9.

There is a high negative correlation (−.69) between the size of the student body and the costs per student. Because of constantly rising levels of expenditure and insufficient legislative support in supplying funds, a considerable increase in the percentage of total income derived from student fees is found to have taken place in the period under investigation—an increase in the median of from 7.3 per cent to 10.5 per cent. This is found to be but little less than corresponding increases in the case of universities and agricultural colleges and this, too, in spite of the fact that the teachers' college is by legislative enactment a tuition-free school. The median, maximum, and minimum salaries are distinctly lower in the teachers' college than in the state university or state agricultural college. For example, Illinois pays the professors in its teachers' colleges a maximum of $4,650 and its university professors $7,500; Minnesota, $3,600 and $6,000, respectively. It is found, also, that, as a group, the teachers' colleges are far below the standard set for library development.

The author's comments with respect to the preparation of a budget are particularly valuable. Attention is called to the fact, commonly observed, that the administrative officer prepares a budget with the expectation that the legislature will reduce it considerably in the interest of economy. A form for the preparation of a composite budget is suggested which may serve to set forth clearly the exact needs of the institution. This is to be made after appropriate investigations, reports, and conferences between the instructional staff and the administrative officer. With this plan, it is claimed that legislative committees are far less likely to attempt to reduce the appropriation than would be the case if a blanket budget were submitted. One familiar with such procedures knows this to be true. It would be well if administrative officers universally adopted the plan suggested.

The recommendations are directly related to the findings. The author suggests (1) that student costs be reduced by encouraging larger enrolments, (2) that teachers of ability be paid on a scale at least equal to that of the state university or state agricultural college, (3) that students be protected against an increase of fees, (4) that a cost-accounting system be introduced so that more exact and effective budgets may be framed for presentation to legislative bodies.

To those interested in the administration of teacher-training schools or in the general problem of the fiscal support of public institutions, the study will be of distinct interest and value.

R. E. WAGER

EMORY UNIVERSITY

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[1] *A volume dealing with educational experiments.*—In 1918 there was organized, in New York City, the New York Society for the Experimental Study of Education. The membership of this organization has increased from seventy-four to approximately twelve hundred, and the society has found it necessary to reorganize itself into twenty-nine different sections for the study of particular educational problems. The financial support for the work of the organization has come from various sources, the greatest aid being given by the Commonwealth Fund.

The first volume[1] reporting experiments made is now available. It contains reports of thirty-one experiments carried out by members of the society. While a few of these reports discuss problems for experimentation, the great majority of them present objective data obtained through careful experimental work. The nature of the investigations may be judged from the following representative titles: "Children's Ability and Educational Opportunities," "An Experiment in the Supervision of Handwriting," "The Vocabularies of School Pupils," "Some Educational Outcomes Yet to Be Measured," "The Making of a Classification Test," and "A Placement Test in French."

The publication of the volume raises the significant question as to the best agency for disseminating scientific material. The studies presented are too brief for separate monographs but, in some cases, are too long for journal articles. It is essential that scientific material be published in a way that will insure its reaching the attention of those interested in the science of education. Whether such a volume as the present one will reach a sufficiently wide number of readers remains to be seen. A series of volumes has a distinct advantage, however, over material published in separate miscellaneous bulletins, in that as its scope is extended it will furnish a permanent file for such studies.

The procedure of the New York Society for the Experimental Study of Education might be followed with profit in certain other large cities in the United States.

G. T. BUSWELL

[1] *Contributions to Education*, Vol. I. Edited by J. Carleton Bell. Yonkers-on-Hudson, New York: World Book Co., 1924. Pp. x+364. $2.00.

Useful information concerning janitorial services in the schools.—The most useful and practicable discussion of the work of the school janitor which has come to the reviewer's attention appears in a recent volume[1] of the Teachers College Contributions to Education.

In the introductory chapter the author sets forth clearly the none-too-well-understood significance of the work of the janitor with respect to such factors as school health and sanitation, the influence of physical conditions on the learning attitudes of children, the relation of cleanliness and order in the building to character formation, habits of cleanliness and discipline, wider use of the school plant by the community, and the proper care of valuable public property. His purpose is to make a more extended analysis of the janitor's work as a whole than has yet appeared and to present an intensive analysis of several of the more important component jobs. The main divisions of the monograph are concerned with the daily cleaning of floors; dusting; the periodic cleaning of floors, woodwork, and glass; the cleaning of toilets, blackboards, and erasers; and such "special work" as heating and ventilating.

In making the analysis, the author first presents in tabular form the results of an impressive study of the school-board rules and regulations concerning janitorial service in ninety cities and the extent to which these rules are carried out in the schools which he observed. He then proceeds to utilize several of the more important principles of industrial management which are found in the extensive literature of that field. Detailed reports are given of numerous observations of the work of forty-five janitors in eighteen schools in three cities. Since the author took pains to make close contacts with janitors at work, he attributes much of the value of his study to their active and thoughtful co-operation.

The most practicable outcomes of the investigation are presented in numerous concrete recommendations relating to standards of work, scope of the job, materials for cleaning, methods of procedure, building equipment, etc. The following quotations will serve as examples:

All furniture should be dusted every morning and all woodwork at least weekly [p. 186].

Janitors should make all minor repairs, such as replacement of broken windows, fixing window shades, minor plumbing repairs, minor repairs to furniture, and the like [p. 192].

Vacuum cleaning is superior in quality of results obtained to brush cleaning [p. 184].

Erasers may be cleaned by vacuum in one-twelfth of the time required by the beating method or brush method [p. 190].

The most rapid method of sweeping stairs is to sweep along each step to side next wall, going up, and to sweep one step after the other coming down [p. 186].

The single pedestal combination desks and seats make for efficiency and economy of time in daily cleaning [p. 185].

[1] Charles Everand Reeves, *An Analysis of Janitor Service in Elementary Schools.* Teachers College Contributions to Education, No. 167. New York: Teachers College, Columbia University, 1925. Pp. x+194.

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Superintendents and principals, school business officials, the janitors themselves, and other educational workers who are directly concerned with the standardization and efficiency of this important division of school work will read this monograph with unusual interest and profit.

PAUL W. TERRY

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A general introduction to educational measurements.—In the development of a new field there is first the proposal and spread of new ideas in a relatively crude or undeveloped form. This is followed by some years of evaluation, with curiosity, unanalytical experimentation, and miscellaneous extravagant statements on the one hand and slower scientific investigations and critical analyses on the other. If the basic ideas survive this period of popular and expert examination, there comes the third period, when all the work of the long testing process must be summarized and interpreted for those who would like to make use of the products.

Educational measurements appear to be in this last stage. A substantial amount of material in this field has been accepted as sufficiently satisfactory for general use, and it is entirely appropriate that workers should now examine the mass of critical material that has been accumulated in past years, codify the generally accepted principles, and interpret the technical phases in terms of everyday working technique. Various writers have attempted to do this in different ways, and a book[1] which has recently appeared is a contribution in this direction.

The book seems to be quite satisfactory for the purposes for which it was prepared, namely, a general handbook for the guidance of teachers in service and a textbook for prospective teachers. Certainly no one will read the book carefully without becoming generally familiar with the educational-measurement field. It is not an advanced treatise on the fine points of testing, but it is a very practical book for the use of those who want to know something about tests, the characteristics of particular tests, and the use that can be made of tests.

The first four chapters are introductory in character. They present the need for more refined measurements, describe some characteristic features of objective tests, point out possibilities for the use of the results of classroom testing, and give some general directions for the giving of tests. These chapters are very readable and appear to be sound. For instance, it is twice pointed out that the classification of pupils on the basis of a single testing is not justifiable.

The next eight chapters are devoted to the discussion of individual tests in spelling, handwriting, reading, English language and composition, arithmetic, geography, history, and music. Three chapters are given to secondary-school mathematics, secondary-school science, and foreign languages. In these

[1] A. R. Gilliland and R. H. Jordan, *Educational Measurements and the Classroom Teacher*. New York: Century Co., 1924. Pp. xii+270. $2.00.

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chapters the principal tests are discussed, and in most cases samples of the tests are printed. The tests are discussed under the headings of derivation and description, methods of using, and their particular value. While some will doubtless wonder why a certain test is excluded or included, these chapters are admirably adapted for familiarizing the reader with the tests in a practical way.

A chapter on general achievement tests, one on intelligence tests, and one on elementary statistical methods complete the book. With regard to intelligence tests, the authors state that "while achievement testing may be thought of as essentially a part of the work of the classroom teacher, intelligence testing is rather the work of the specialist" (p. 39). It would seem that the authors are correct in their position that the intricate analyses of intelligence and the controversies over its measurement constitute material for an advanced treatise and that a single chapter devoted to mental testing is sufficient for the average teacher. The chapter on statistical methods tends to make the book more complete within itself, and it may prove of some value, although a great deal of harm can be done by those who are not thoroughly familiar with statistical procedures.

The main contributions of the book are the detailed discussion of actual tests and the placing of the major emphasis on educational tests rather than on mental tests.

DOUGLAS E. SCATES

A new inventory of children's habits.—The crude questionnaire and mass-observation methods of the earlier studies of children have given way to the more refined technique of individual observation of the same child through an extended period of time and to the even more effective standardized test. A present limitation of the latter device is its inability to take account of the emotional, motor, and social factors. This is particularly true in the nursery-school age groups, where even the mental test has not penetrated far.

A recent monograph[1] of the Teachers College series presents a new inventory of the habits of children from two to four years of age and relates the author's efforts to train prospective teachers in its use, to discover the value of the inventory for diagnostic purposes, and to ascertain the ability of students to fill out the inventory on the basis of case records of individual observations.

Pupils in four nursery schools in New York City were used as subjects. The training was given to students in kindergarten-primary education and a small group in a psychology seminar. Preliminary experimentation was conducted to complete the inventory list and provide training in observation. The final experiment employed sixty-seven observers, each of whom observed one child at regular intervals over a period from three to five weeks in length. In an effort to test the value of case records as documentary evidence in the hands of those

[1] Ruth Andrus, *A Tentative Inventory of the Habits of Children from Two to Four Years of Age.* Teachers College Contributions to Education, No. 160. New York: Teachers College, Columbia University, 1924. Pp. 50.

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not familiar with the particular children, another group of students filled out inventories from records made by others.

Statistical methods were employed to measure improvement in using the inventory after the preliminary period of learning. Variation from the average was the criterion of progress. The amount of variation was correlated with the mental-test scores of the observers. The scores on the four divisions of the inventory (emotional, mental, motor, and social-moral) were correlated with one another and with the mental ages of the children.

The results seemed to demonstrate the value of the inventory, provided the users have thoroughly mastered its contents and have practiced using it. This applied to both groups, those who were engaged in observation and those who used the case records. Small variations among the observers did not correlate significantly with mental-test scores, as there were some with high scores who produced wide variations from week to week in using the inventory. Intercorrelations among the scores on the four sections of the inventory and the correlations of the scores on the four sections with the mental ages of the pupils were significantly positive in the case of all sections except those which include emotional factors.

The real contribution of the investigation is the inventory list, which contains 1,230 items and is the consummation of all the investigations which have been conducted at Teachers College in this field. The author states her intention of enlisting the co-operation of other nursery schools for the purpose of establishing norms for the two age groups in the four sections of the inventory.

PAUL L. PALMER

Supplementary books for upper-grade history, civics, and geography.—The frequently given advice to enrich the upper-grade curriculum is much more appropriate now than formerly in view of the fact that there is now available a large fund of printed materials suitable for such enrichment. The large number of supplementary books makes a separate review of each impracticable, but it is important that teachers keep in touch with the types of material being published.

Professor G. M. Wilson has compiled an interesting volume[1] to be used in making more vivid the ideals which constitute the basis of Americanization work. Mr. Wilson has made selections from the public speeches and writings of presidents of the United States and of other leading citizens which illustrate and clarify the principles of Americanism that need to be taught. The chronological order of the material in the book is reversed, the first chapter giving two addresses by President Coolidge and subsequent chapters being devoted to speeches and writings of others dating back to the period of the American Revolution. Each of the selections is preceded by comments which give it the proper setting and furnish an appropriate introduction to its use in the classroom. The mate-

[1] G. M. Wilson, *What Is Americanism?* Newark, New Jersey: Silver, Burdett & Co., 1924. Pp. 330.

rials are well selected. If used as the author has intended, the book will undoubtedly make more vivid those ideals of Americanism which are too often considered intangible.

A second book[1] deals entirely with the biographies of American presidents, beginning with Washington and treating each president in order up to the present time. The biographies are written in an interesting fashion for children, and a considerable amount of detail is included. There is thus a marked contrast between the style of this book and the encyclopedic treatment which is all too common in biographies. A very interesting introduction is provided which should be read by the pupils. The book has numerous illustrations.

One of the outstanding books of the year in the social sciences is the volume[2] prepared by Professor Marshall and intended for use in the upper grades or the junior high school. The book gives a preview of the social studies. Its purpose is concisely expressed in the following paragraph:

> The purpose of this preview is simple—and at the same time ambitious. It seeks to give the pupil a coherent view of the main forces or factors involved in living together in society. It seeks to give him a simple, consistent framework to which he may attach his later thinking and experience, to the end that he may come to think of life as a whole rather than as a series of scattered fragments and to the further end that he may become qualified "to take an intelligent and effective part in an evolving society" [p. v].

The book is the result of a long period of work on the part of the author and his assistants. The materials have been tried and revised until their value is fairly well known. If such a text can be used with profit in the upper grades, it will be of the highest value to the subsequent social studies. While it remains to be seen whether such material is appropriate for pupils of the maturity of upper-grade children, its wide use experimentally is altogether desirable. The illustrations in the book deserve particular comment. They are well selected, and they support the discussion in the text in a direct way.

One book[3] has for its purpose the giving to the pupils of the middle elementary grades an appreciation of the social and economic value of the means of travel used at the present time. The book traces the evolution of the different means of travel and communication and provides a valuable account of the transition stages in this evolution. The content is divided into two principal sections, the first dealing with "Travel" and the second with "Communication." The material is well adapted to the maturity of intermediate-grade children.

Another supplementary text[4] in home geography has been written by Nellie

[1] James Morgan, *Our Presidents*. New York: Macmillan Co., 1924. Pp. xviii+326. $2.50.

[2] Leon C. Marshall, *The Story of Human Progress*. New York: Macmillan Co., 1925. Pp. xvi+548.

[3] Daniel J. Beeby and Dorothea Beeby, *How the World Grows Smaller*. New York: Charles E. Merrill Co., 1924. Pp. vi+294. $0.96.

[4] Nellie B. Allen, *How and Where We Live*. Boston: Ginn & Co., 1924. Pp. vi+282. $0.88.

B. Allen. The material is organized into three sections, the first dealing with "Home Life and Needs," the second with "Our World Neighbors," and the third with "Our Own Country." The individual selections are brief, frequently covering only two or three pages. The illustrations are good, and the general style is interesting. The book is intended principally for supplementary use.

A new basic geography[1] dealing with "Journeys in Distant Lands" has been written by Professor Barrows and Miss Parker. The distinctive features of the book which deserve comment are the following: (1) It deals throughout with relationships between man and his natural environment. (2) It is organized on the "one-cycle" plan, thereby avoiding repetition and providing a fuller treatment of individual regions. (3) It is designed to give children a concept of the world as a whole. (4) The pictures, maps, and reading matter have been prepared in accordance with the findings of experimental education and are of a high order of merit. (5) The provisions for the teaching of map interpretation are worked out in a particularly careful fashion. The major thesis of the entire book is that "learning the geography of any part of the world means learning *how the people there have made or can make their work and play and their ways of living fit the kind of country in which they live*" (p. vi). The book represents the modern point of view in geography and is an excellent piece of work both from the standpoint of its content and from the standpoint of its mechanical make-up.

Arithmetic textbooks.—Men and women in public-school work have been wondering if the time would come when textbooks would appear well under the searchlight of scientific investigation. Studies of numerous arithmetic texts have revealed many discouraging defects. In many texts some of the facts in arithmetic have appeared almost an infinite number of times, while other facts have appeared infrequently or not at all. On the other hand, the arrangement of the materials and the development of the subject have not been in harmony with well-known psychological principles. Some teachers and supervisors have attempted to teach pupils all the known number facts and to arrange the materials on the basis of results obtained through scientific investigation. They have found the procedure to be so laborious, however, that they have not hoped to see these facts and principles incorporated into an arithmetic series.

A series of texts[2] have appeared, however, which include the number facts, principles, and organization shown to be desirable. The laws of learning are so applied as to make the usual classroom teaching less a burden and a blunder and to permit the series to lend itself to supervised study. New facts and principles are introduced in a manner that enables the child to use old information in learning the new.

[1] Harlan H. Barrows and Edith Putnam Parker, *Geography: Journeys in Distant Lands*. Newark, New Jersey: Silver, Burdett & Co., 1924. Pp. viii+152.

[2] John C. Stone, *The Stone Arithmetic:* Primary, pp. xiv+306, $0.72; Intermediate, pp. xiv+322, $0.76; Advanced, pp. x+326, $0.80. Chicago: Benj. H. Sanborn & Co., 1925.

Osburn has said that examples should be presented in such order that one new difficulty, and only one, is presented at a time. The following are a few instances wherein the new series has met this requirement: addition facts are learned before the corresponding facts are presented in three-figure columns, and three-figure columns in turn before four-figure columns; subtraction facts are learned from addition facts by the additive method; multiplication is derived from addition; certain subtraction facts are well drilled before division; division is derived from multiplication; adding by endings precedes bridging; short-division facts with and without remainders appear before long division; common situations lead into fractions; fractions lead into decimals; percentage is developed from decimals; and graphing is approached through percentage.

Thorndike has offered a suggestion pertaining to the amount of drill needed in order to master the fundamental number facts. The amount of practice in the new series does not check with Thorndike's figures, but the principle of repetition at intervals is observed strictly. Practice drills in the four fundamental operations are interwoven throughout the series and are of such length as to eliminate the usual fatigue. All motivation is accomplished through the drills and exercises, no wasteful devices to arouse enthusiasm being used. The tentative time limits which are furnished for the drills are a definite challenge to the child and a beginning in the direction of training for greater speed in handling facts accurately. The lessons are well graded according to difficulty, the easier facts being gradually eliminated and the more difficult facts repeated as the pupil progresses through the series. The space devoted to each of the four fundamental operations is practically the same, with addition and division slightly favored. Fractions and decimals are presented in a straightforward manner, without the use of obsolete crutches. Many timed tests and races in the four fundamental operations, fractions, decimals, quick thinking, and reasoning are included throughout the series. These are of value to both teacher and pupil but are especially valuable to the pupil because they encourage self-testing.

ALFRED W. BEATTIE

HOMESTEAD, PENNSYLVANIA

Having fun with arithmetic.—An index is usually a serious and uninteresting appendage to a book, a dull, but necessary, part. What, then, is the reader to think who finds an index that reads as follows?

Baconus, a prince of the blood
Badger, Nathaniel, husband of Penelope Badger
Badger, Penelope, wife of above, niece of Sandy MacIvor
Barrelburg, home of Miss Peggy Pitkin and Mrs. Sophia Googins
Batville, home of Homer Jimpson
Beautiful Kitten Sennacherib
Benjie, a boy who goes swimming
Best Butter, a goat

Surely such a list is enough to pique the curiosity of any human being, especially that of a small boy; but who would ever guess that this index belonged to an arithmetic[1]—an illustrated arithmetic?

To one who, as a child, shed endless tears because she could not find the length of a pole that was $3\frac{3}{8}$ feet in the mud, $2\frac{2}{8}$ feet in the water, and $6\frac{1}{4}$ feet in the air, this book comes as a long-sought friend. Why should any child bother about hypothetical poles when he can as well be figuring on a "Race between a Boy, a Hoop-snake, and an Alligator," or "Cold Air Let in by a Dachshund," or "Time Lost in Punishing Children," or the "Carrying Power of the Voice of Infants"? No boy would be ashamed to be interested in such a problem as that of "Dog Wagging off Weight."

A dog, named Jasper, aged 4 years and 4 months, adores his mistress, Mrs. Tom Jeffries, age unknown, who lives 7 miles west of Grubville. She goes to town twice a week, being gone $8\frac{1}{2}$ hours each time. Jasper has, unfortunately, a wonderful imagination. He keeps thinking that she is going to return every minute and cannot prevent his tail from wagging. He stands at the gate waiting for her and wags off weight at the rate of $\frac{1}{2}$ oz. every 2 hours. At the present moment Jasper weighs 32 lbs. and 5 oz. What will be his weight in 2 years?

Any reasonable person will agree that it is just as important to reckon the hairs left on the "Beautiful Kitten Sennacherib" as it is to find the length of an imaginary pole.

A beautiful kitten named Sennacherib, aged 2 months and 3 weeks, caught the mange (a word derived from the French *manger*, to eat; always seize every chance to acquire useful information) from having been too much played with and petted by the children. If before catching the mange he possessed 17,660 hairs, and lost 218 hairs a day, how many did he have left after 81 days?

"The Impact of the Mule Judson" is as valuable for a study of pound weight as the usual problems about salt or sugar.

A mouse-colored mule named Judson, aged 16 years, who lives 15 miles south-by-southwest of the town of Pennyroyal, has found by long experiments that his power of impact increases in proportion as he stuffs himself with hay. On an empty stomach, he has an impact of only 306 lbs. He says that this impact increases 1 lb. for every $4\frac{1}{2}$ lbs. of hay consumed. He is now trying to figure what his impact will be if he eats 1 ton of hay. Can you find the answer for him?

This review having opened with the index, it is fitting that it close with a discussion of the Preface, which "is not meant for boys but for adults who are discontented with them." The author says that there is a "radical defect" in all books on arithmetic.

There is another and even more radical defect in all books on arithmetic: they require an exact answer to every question! Does not observation show that exact answers are the exception, rather than the rule, in life, and is it not for life that we train boys? What is life but a matter of oddments and remainders? Have you ever known anything in life to come out even?

[1] Raymond Weeks, *Boys' Own Arithmetic*. New York: E. P. Dutton & Co., 1924. Pp. xvi+188. $2.00.

For the sake of the children, it is to be hoped that Mr. Weeks (he prefers to be called Mr. or Col.) will some day write a boys' own grammar, and perhaps a geography, too, since he is so versatile. A grammar should be in his line, since he is professor of Romance languages at Columbia University. The author claims that "this little book is meant mainly to be read at home where its defects will be regarded with indulgence. It is intended to amuse and interest all the family, and to draw them about the table of an evening, as in the olden time, to listen, to laugh—and to learn." Even so, he has done for the teaching of arithmetic what Lewis Carroll did for children's readers and what Van Loon has done for children's histories.

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CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

BOOK, WILLIAM F. *Learning to Typewrite, with a Discussion of the Psychology and Pedagogy of Skill.* New York: Gregg Publishing Co., 1925. Pp. xviii+464.

KLAIN, ZORA. *Quaker Contributions to Education in North Carolina.* Philadelphia: University of Pennsylvania, 1924. Pp. 352.

LOTZ, PHILIP HENRY. *Current Week-Day Religious Education.* New York: Abingdon Press, 1925. Pp. 412. $2.00.

WOHLFARTH, JULIA H. *Self-Help Methods of Teaching English.* Yonkers-on-Hudson, New York: World Book Co., 1925. Pp. viii+294. $1.88.

BOOKS PRIMARILY FOR ELEMENTARY-SCHOOL TEACHERS AND PUPILS

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